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How to feed the baby to make it healthy

HOW TO FEED



ALICE AT THREE MONTHS.

THE BABY.

SIXTH EDITION, REVISED.

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HOW TO FEED THE BABY

TO

MAKE IT HEALTHY AND HAPPY,

WITH

HEALTH HINTS.

LANE LIBRARY

By C. E. PAGE, M.D.,

AUTHOR OF "THE UNITY OF DISEASE, ITS ORIGIN AND REMOVAL";
"NATURAL CURE OF CONSUMPTION"; "BRIGHT'S DISEASE";
"CONSTIPATION," ETC.

*"At first the Infant mewling and puking in the nurse's
arms;" . . .*

AS YOU LIKE IT.



SIXTH EDITION, REVISED.

NEW YORK:

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TO
THE AMERICAN SOCIETY
FOR THE
PREVENTION OF CRUELTY TO CHILDREN

THIS THIRD AND REVISED EDITION IS

Respectfully Dedicated.

AUTHORITIES QUOTED.

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PREFACE.

PHYSICIANS usually come in for a round share of complaint, if not abuse, at the hands of hygienic writers who may, or not, have themselves belonged to the profession which they now seek to disparage, whenever any radical change is demanded, and which, it may be claimed by the enthusiastic author, should have been made long ago at the instance of the doctors.

But knowing, as I do, that medical practitioners, the world over, are, as a rule, the hardest worked and the poorest paid; the most untiring in their efforts to benefit their patrons (who are so often their beneficiaries); and the most magnanimous and philanthropic of all professional men, and, therefore, that they have earned the deep hold that they certainly have upon the minds and the hearts of the people,—knowing all this so well, I am sure that only by their general approval and co-operation, can there be brought about any radical and speedy reformation such as is suggested in the following pages. It is, however, generally true that the people, high and low, *demand*, not hygienic advice, not health rules.

from the family physician, but *drugs*; and that if he essays to restore them to health by advice alone, as to their habits of life, as in many instances he would be inclined to do, the patient becomes not only *im*-patient, but, often, will be so offended as to call another doctor. This phase of the case is so universal among the people, who live without thought—"Eat, drink, and be merry, and to-morrow take a bilious pill"—that the regular physician seems compelled to compromise more or less with their notions, in order to give them the benefit of his experience and prevent them from calling less scrupulous practitioners; or, in other words, he seeks to retain the confidence of his people by giving them the medicine he thinks they may need, and all the advice he finds their constitutions can stand!

I feel sure that no class of our citizens can better understand and appreciate the evils herein sought to be ventilated than physicians themselves, and that they may co-operate in my efforts to reform them is my earnest hope and prayer.

C. E. P.

BIDDEFORD, ME., 1882.

47 RUTLAND ST., BOSTON, 1884.

PRELUDE.

"WELL, I'll give it up!" This was the exclamation of my mother-in-law, when, at the expiration of nine days, having received no invitation to her new granddaughter's funeral, she ventured to make her first visit.

When the baby came, she utterly refused to call. "Couldn't stand it to hear a baby cry all the time, and she knew that would be the effect of the experiment, as long as the dear little thing had strength to cry." After her first visit, however, she came every day, often remarking: "It is so nice to have a baby that feels like laughing all the time!" She spent an entire week, present with the baby day and night when the latter was a few months old, and never heard a single cry.

"Was the child bright?" Perhaps you think it would be safe to ask her grandmother, who never lost an opportunity of advertising her as the healthiest, happiest, and brightest baby she ever saw, always concluding with, "And I have had seven of my own."

"Don't your baby ever cry? I never hear her," asked a neighbor of my wife.

"Oh, yes, when she bumps her nose, or gets angry with her parents, but she has very little to find fault about; we keep her feeling too good to cry. She has no aches or pains, or anything to fret and worry her, and although she takes care of herself most of the time she does it happily."

Think of it, parents! a baby living month after month without colic, "red gum," canker, sore-mouth, "colds"—not even the snuffles—no throwing up of milk, no drooling, but everything sweet and lovely, as new life ought to be, at its best.

But how about babies in general; are they not all thus blest? Let us see.



ALICE AT THREE MONTHS.

HOW WE FED THE BABY

TO

MAKE HER HEALTHY AND HAPPY.

OCCASIONALLY, within a few years, attempts have been made to startle the people into a sense of the fearful meaning of the undue proportion of sickness and death among children under two years of age—an age when, according to the belief of scientific men, the sickness and death of healthy-born infants should be almost unknown. A few individuals are shocked for the moment at the figures presented, but yet little is accomplished so far as teaching the masses the cause and prevention, and but little improvement is made. Is it the fault of the profession in not enlightening parents and equally ignorant nurses? Are there phases of the question upon which even the profession need more light?

Statistics prove that nearly one-third of all deaths are of infants under one year! This is not merely among the wretched poor, either in city or town; not among the crowded tenement population solely, nor chiefly; but everywhere, among the rich as among the lowly, children are born to spend their first two years under conditions that, however seemingly favorable,

are yet such that it is the exception rather than the rule when an infant escapes a severe illness during his first twelve months, while about one-third of the entire number are *surely doomed to die* within that time. Nearly all have a good beginning, and thrive, to the satisfaction and delight of parents and friends, for the first few weeks or months, but it is only a question of a little time—almost to the last one they take their turn with an enemy that seems well-nigh relentless.

And yet I am continually reminded of the general lack of appreciation among the people as to the true condition of this class, simply because the instances of suffering and death, being single and occasional, on any given street, or at least among one's own kindred or social circle, the appalling aggregate is not known to them—few people interesting themselves in statistics, and least of all in mortality reports.

For example, if the individual addressed has had the exceptional good fortune to raise all of his children to adult age, forgetting, perhaps not knowing, the fact, that one of his neighbors lost four out of six, who lived uncomfortable lives for a few months only to die agonizing deaths; another, three out of five, and still another, two out of four; and, too, happily forgetful of the serious physical inconveniences suffered by his own children, and his own anxiety and alarm, during their infancy; he is inclined to consider much of the talk, of specialists, about infant mortality as an exaggeration of the real facts.

While I do not expect to work an immediate revolution in the matter of infant dietetics by the publi-

cation and distribution of this treatise, I do hope and believe that it will awaken the attention of scientific physicians and others, and lead them to a more careful consideration of what must be regarded as the fundamental principle underlying this whole question of infantile diseases, and their prevention and cure.

The authorities quoted herein—and which I might multiply many times over—are among the most eminent in the profession, and although none of them—probably from lack of experimentation in the press of general duties—have gone to the bottom of the question of infant alimentation so as to enable them to give specific instructions as to amount and frequency; still, as regards the sad consequences of the universal manner of feeding infants and young children, there is an entire unanimity of opinion. For myself I will say that such knowledge as I possess has been dearly bought by experience, first in the loss of three out of five healthy-born babes, fed as nearly all infants are which led me to the conscientious and special study of the question, regardless of sacrifices in many directions, during the past five years.

Perhaps nothing could better illustrate the real condition of infant life, and its appreciation by intelligent observers, than the following simile, thrown off with no indication of *malice prepense*. In an article in the *Cornhill Magazine*, entitled "A Plea for Musicians," the writer, counseling charity for beginners, says: "We tolerate infancy, let us be charitable to infant musicians. We gloze over that period of our children's lives when their existence is a hideous

nightmare—a constant alternation of famine and surfeit; when the wail of inanition follows hard on the stertorous breathing of repletion, for the sake partly of the sudden random gleam of inner light that breaks from them, and reminds us of the great anti-Darwin."

That this divine "inner light" may earlier, and more surely, become something more than "a random gleam," that it may, indeed, be from the beginning a steady flame of mental and physical delight, requires only that our new-born may be cared for upon a basis as nearly physiological as is already the rule in the case of the young of our domestic animals.

The whole brute creation rear their young with a certainty of their arriving at maturity without sickness of any sort. The young of man alone are doomed to run the gauntlet of cruel and needless suffering from which but few more than half their number escape to reach adult age; while, as has been said, nearly one-third of all infants succumb the first year. Few of the remaining two-thirds escape a severe sickness, and about ten per cent. more die before reaching two years. More deaths occur *under one year* than during the *next nineteen*, and *more than twice as many* die *under two years* than during the succeeding eighteen, between *two and twenty*, as is shown by the following table, prepared by Dr. Emerson, for a period of five years,* embracing the years 1826, 1827, 1828,

*We give the statistics of Philadelphia fifty years ago, in order to prove by recent figures that but little improvement is perceptible

1829, and 1830. The still-born were deducted from the mortality under the first year :

	UNDER 1 YEAR.	BETWEEN 1 AND 2.	BETWEEN 2 AND 5.	BETWEEN 5 AND 20.	TOTALS.
January.....	281	81	102	109	573
February.....	382	109	123	131	745
March.....	322	119	122	138	701
April.....	342	107	125	122	696
May.....	250	98	107	107	562
June.....	510	148	84	105	847
July.....	836	249	117	120	1,322
August.....	546	317	120	165	1,148
September.....	377	221	140	185	923
October.....	324	127	117	153	721
November.....	267	90	114	132	603
December.....	269	90	114	135	608
Total.....	4,706	1,756	1,385	1,602	9,449

Dr. Emerson, after all his care in compiling this and other tables connected with this subject, failed to account for the terribly disproportionate mortality among infants. The great excess of deaths during the summer months he attributed solely to the heat, and, indeed, if we look no further than this table, this would be the natural conclusion.

Dr. Dunglison,* referring to these figures and to Dr. Emerson's conclusions therefrom, says : " We have already said that cholera infantum is the great scourge of our cities during the summer months, and this affection is doubtless in part occasioned by excessive

*Robley Dunglison, M.D., Professor of Materia, Therapeutics, Hygiene, and Medical Jurisprudence, in the University of Pennsylvania, etc.

heat; but that this alone does not induce it, is shown by the fact that in country situations, where the heat may be as great, it is comparatively rare." And again "It has been already shown that not only is the general mortality of London greater than that of Philadelphia, but the deaths at the ages most liable to cholera infantum are more numerous also—a fact which confirms the remark just made, that something more than excessive heat is, in such cases, the lethiferous agent."

He assigned as one great cause of excessive infant mortality, defective ventilation. This can not account for the fearful increase of deaths of infants in summer, for the reason that at this season the houses of all, rich and poor, are better ventilated than in winter, for doors and windows are freely opened. Still it is true that, take the year through, the vital necessity of pure air is generally disregarded. Even the right amount of food can not become nutritious without being vitalized by pure air in the lungs.

It is of the highest importance to secure again the wrong conditions as to air, clothing, and cleanliness, but we shall presently see that the chief danger does not lie in this direction.

The following facts and figures compared with the table already given will show that not much improvement has been made during the past fifty years; that the *value of infant life has not increased!*

According to the returns of the Board of Health of Philadelphia,* there were born in that city, during the

* "Infant Mortality," etc., by J. S. Parry, M.D., Philadelphia, Paper read May 5 1871, before the Social Science Association.

five years ending December 31, 1870, 85,957 living infants, of whom 25,636 died before they were two years old, and a total of 31,662 before their fifth year; nearly thirty-seven per cent.

In New York City fifty-three per cent. of the total number of deaths occur under the age of five years.*

"It certainly can not be supposed that the Creator intended that all these little ones should suffer and die. There is every proof to the contrary. Has He not wisely and beneficently adapted all their physical wants to the circumstances in which they are supposed to be naturally placed? Has He not surrounded them with every condition and requirement necessary for the maintenance of life and health? For the very preservation of life, has He not ordained certain laws to be observed, the neglect of which necessarily brings disease and premature death?"

"Allowing that some of the causes of infant mortality are and always will be more or less unavoidable, yet it will be conceded that the greater number of deaths must be due to causes largely within our power to remove."†

*"Relation Between Alimentation and the Gastro-Intestinal Disorders of Infants and Young Children. By B. F. Dawson, M.D., Physician to the New York Dispensary for Sick Children, late Clinical Assistant to the Clinique for Diseases of Children in the College of Physicians and Surgeons, New York." Paper read May 14, 1875, before the New York Medical Library and Journal Association, and from which I have drawn largely in the way of vital statistics and quotations of writers in this special field.

† Dawson.

Of 9,873 children who died in Massachusetts in 1870 under five years of age, more than one-half of the deaths were due to affections of the digestive organs.*

"Of 11,382 children under twelve years of age, treated at the dispensary for sick children in this (New York) city, during the past three years, 3,243 were suffering from affections of the organs of digestion. It will not be supposed for one moment, even by those ignorant of medical knowledge, that very many of the above cases were due to congenital or unavoidable causes; but, on the contrary, such figures most convincingly prove that the great prevalence of digestive disorders in infancy and childhood must be due to causes arising from ignorance in their management, especially as to their alimentation."†

In 1870, Dr. E. Ballard, of England, published a very thorough article on "Infant Mortality."‡ He showed that in five years (from 1863 to 1868) there were in England 314,242 deaths of infants under one year of age, of which 277,852 were due to the disorders of the digestive organs. "We must arrive," says Dr. Ballard, "at this conclusion, that the infant death-rate is nearly half as large again as it ought to be; and have next to inquire how it is that, in the five

* "Proper Treatment of Children," by Charles E. Buckingham, M.D., etc., Boston. Discourse before Massachusetts Medical Society, 1873.

† Dawson.

‡ *British and Foreign Medico-Chirurgical Review*, April, 1870.

years referred to, 164,190 deaths happened more than there was due and proper cause for happening.

"Considering what we know concerning the causes of thrush, atrophy, 'teething,' and convulsions, (the averred causes of the great proportion of these deaths) we will not be considered extravagant in asserting that half of these 314,242 deaths ought not to have occurred at all—that they represent roughly, for the five years referred to, the unnecessary destruction of infant life due to active or passive *criminality, ignorance, and carelessness.*"

The report of a committee appointed in 1869 by the Obstetrical Society of London,* supports this statement. It was found by that committee that errors of diet—*chiefly excessive feeding*—were general and most flagrant, and the report concludes: "Under these circumstances it is little to be wondered at, that bowel and intestine diseases, followed by general wasting, are so alarmingly prevalent. Indeed this question of improper alimentation must be held accountable for a very large proportion of the excessive infant mortality which prevails."

Dr. Dawson, quoting this in the paper before referred to, says in this connection: "So forcibly, indeed, is this experience impressed upon me, that I have but little hesitation in saying that much rather would I undertake the treatment of the majority of cases of gastric or intestinal disorders in infants *without being*

* Transactions of the Obstetrical Society of London, for the year 1869. Vol. XI., page 137.

allowed the use of a single article in the materia medica than be withheld the entire control of the alimentation of the infant." If, therefore, it is a fact that the majority of the cases of gastro-intestinal diseases are the immediate or subsequent results of faulty alimentation, chiefly through the prevailing ignorance as to the proper requirements of the infant's stomach, we can not be too zealous in our endeavors to combat the misfortune that the young of the human species are not endowed from birth with the power of distinguishing good from injurious feeding. There the young of the lower animals have the advantage. They are fed on natural food only, from the beginning, because their parents (beside their inability to furnish an excess) *don't know enough to kill them.* Man, the reasoning being, is defeated by the animals who possess instinct only."*

The argument may be used, that, as the majority of infants are fed during the first months of their lives upon the food intended for them by nature—breast-milk—how can faulty alimentation be the cause of gastro-intestinal diseases in such? In answer to this question, I would say that the chief trouble in most cases is due to excessive feeding—*too many meals* and too much food at each—rather than any fault as to quality. From birth to the eruption of the teeth, nature supplies the infant with the mate-

* "The Proper Treatment of Children." Discourse before the Massachusetts Medical Society, 1873, by Charles E. Buckingham M.D., etc., Boston.

rial for its sustenance that is in perfect harmony with the needs of its economy, namely, its mother's milk; but everything goes to prove that the liquid food received into the stomach must be in *such quantity* and received at *such intervals* as to admit of its perfect digestion and rapid assimilation. If, therefore, these requirements are not fulfilled, it necessarily follows that gastro-intestinal disorders of some kind will probably occur, which, if the evil be not corrected, from a slight ejection of undigested milk, will lead to chronic vomiting, enteralgia, constipation, intestinal catarrh, etc., which in their turn will lead to wasting, convulsions, and death.*

The subject of the care and hygienic treatment of young children is little discussed in our medical colleges. Our medical students study the relation of the materia medica to cholera infantum, "teething," and the various ailments of infants, but with regard to the *prevention* of infantile diseases, or the relation of alimentation to the stomach and bowel troubles, they are left comparatively ignorant.

"The prominent aim of medicine being to discriminate and to cure *disease*, both the teacher and the student naturally fix upon that as their chief object; and are, consequently, apt to overlook the indirect, but substantial aid, which an acquaintance with the laws of health is calculated to afford, in restoring the sick as well as in preserving the healthy from disease. In my own instance, it was only when entering upon

* Dawson.

practice that I first had occasion to feel and to observe the evils arising from the ignorance which prevails in society in regard to it."*

The question of "teething" demands more than a passing notice. Can it be supposed, by even the most ignorant, that the cutting of teeth was an afterthought of the Creator, and that since the little ones generally come into the world toothless, this great mistake could be corrected only by a painful and dangerous abnormal process? There is every reason to believe that they would get their teeth as easily as they do their toe-nails, if up to the dentition period they were kept in a perfectly healthy condition.

"It is the popular idea that when an infant begins to teeth he is peculiarly liable to intestinal and other troubles, and when the disorders occur at this period of infant life, the cause is at once said to lie in the fact that the baby is teething, and that, consequently, it is an unavoidable misfortune that the baby is sick." The only misfortune connected therewith is the ignorance of the physician and attendants. In no sense is sickness an incident of teething. It is simply coincident, and arises from the fact that it is at *about this age* that the system begins to break down under the excessive labor so long imposed upon the organs of digestion, assimilation, and excretion.

I refer the backwardness of teething, that is, the delay and difficulty and sickness so common, in many instances to fatty degeneration caused by excessive

* Andrew Combe, M.D., "Principles of Physiology applied to the Preservation of Health." New York: Fowler & Wells.

feeding; and the consequent cessation of the normal growth of the body, including, of course, the teeth.

It is believed that of the enormous quantities of milk swallowed by either hand-fed or nursing infants, where the supply of breast-milk is abundant enough to permit of excess, by far the greater part passes through and out of the alimentary canal unchanged, except so far as fermentation and putrefaction affect it. This refers more particularly to the caseine, or bone and muscle-making element, the fatty matters seeming to be assimilated often to an enormous degree.

Let us, for a moment, compare the amount swallowed by a greedy hand-fed infant, with the capacity of an adult to master a proportionate quantity. Take an infant already abnormally fat, weighing, at three months, say fifteen pounds, and consider him apart from the excess of fat, which is, at least, five pounds; calling his normal weight ten pounds—about what he ought to, and would, weigh if in a normal condition. If fed every hour or two, he will swallow one and one-half quarts of cow's milk in one day. Such cases are not uncommon.

Now, consider the needs of a moderately working man to be equal in proportion to size,* a man weighing 150 pounds, without fat, should take fifteen times the quantity swallowed by the infant, or *twenty-two and one-half quarts*—a quart for nearly every hour of the day and night; or, allowing nine hours for unin-

* This comparison is not put forward as strictly scientific, or accurate to a nicety, but it approximates it sufficiently near to show the enormity of the infant's excess.

terrupted sleep (think of a man thus fed being able to sleep uninterruptedly all and every night any more than the abused infant!) and during each of the fifteen waking hours he must swallow three pints of milk. If the baby's milk was diluted one-third, we have still fifteen quarts of pure milk and seven and one-half quarts of water for our man's rations. If any one is disposed to criticise the basis of this computation, and considers that I should make the estimate from the baby's entire weight of fifteen pounds, I have only to select my man accordingly—a man of the same height, but, like the baby, grossly fat, and weighing 225 pounds, and the figures hold good. It can readily be seen that the quantity is several times what could properly be taken, in either case.

Is it to be wondered at that the alimentary canal, from mouth to anus, becomes irritated, and the whole body, including the gums, becomes inflamed, in the case of our food-salivated infant, whose purging, wetting, nose-running, and drooling, attest to nature's efforts to get rid of the excess? And when, in due time, the teeth ought to appear, they prove to have become "stunted," like the bones and muscles of the ribs, legs, and arms, either through fatty degeneration or for want of the nourishment of which they have been deprived by reason of the inability of the diseased organs to digest and assimilate enough food. Nature is crying out for the nourishment impossible to obtain from undigested and unassimilated food—she cries out for *growth*—and there must be an upheaval, a "cure."

When diarrhœa or cholera infantum have purged and cleansed the body of its impurities, including more or less of the fat—when the cure is effected, or well underway, and the general healthy growth of the body resumed, the teeth also resume their growth and *begin to make their appearance*. It is not, perhaps, strange, in view of the universal belief in the superstition, that under such circumstances the cause of the sickness is attributed to “teething.”

In some cases, notwithstanding the excess swallowed, or in consequence of it, I might say, the system is not able to appropriate either caseine or butter in sufficient amount to either grow or fatten, when the condition resembles that of one who has an inadequate supply.

The healthy-born babe has the power to digest and assimilate easily and continuously an amount of food, sufficient to produce a normal growth. This rate of growth *can not be exceeded*, however much food is taken. It can be checked, or stopped altogether, by either a deficiency, or an excess, of food, continued for any length of time. The increase in weight—the rolling on of fat—is a delusion and a snare.

The infant who has the good fortune to have about the right amount of appropriate food—neither too much nor too little—from day to day, will grow steadily and have no inconvenience from cutting teeth.

The attempt to accustom the organs of digestion at this period to adult food is the extreme of folly. How carefully the mother guards the little legs from

bearing the body's weight prematurely. In this she is wise, and yet how insignificant the possible harm compared with the sure and positive injury sustained by the vital organs, by prematurely feeding the infant on even the best selected articles of the general table. It is not uncommon for infants to be given cakes and candies, and even pork, fried fish, cabbage, ham, potatoes, etc., while the teeth are blamed for the ensuing gastro-intestinal disorders.

Milk is the food of babes and contains all of the elements necessary to make teeth, and until they are made, it should continue to be the sole food. It is not enough that two or three or half a dozen teeth have come, that they should be expected to do any part of a grown child's work.

Dr. Dawson says on this point: "If there was ever an absurd fallacy fastened upon the popular mind, it is, in my opinion, this bugbear of 'teething sickness.' I have never seen such a case myself, and it is beyond my comprehension why the Creator should afflict only the young of man with a normal physiological process dangerous to health and life. But, nevertheless, multitudes of infants are taken sick and die just at this period with gastro-intestinal disorders, and some cause there must be for it. The latter is not difficult to find; it is faulty alimentation, either prior to, or, as is most generally the case, during the cutting of the teeth."

The food should continue to be breast milk, where this is possible, or, in lieu thereof, cow's milk mixed as recommended elsewhere, and upon no consideration should any of the farinaceous or starchy articles

be added until the mouth bristles with teeth ; then it may justly be considered that he can handle something of the adult diet.

This is commonly regarded as a critical period ; but if this normal change be made in a normal way—neither too early nor too abruptly—it should occasion no inconvenience. “ It is a great mistake to suppose that all the food taken into the ‘ tender and delicate ’ stomach of the young child should be fine, concentrated, and divested of all innutritious matter. It is, on the contrary, even more important for children than for adults that the food should be unconcentrated and unobstructing, as well as simple and uncomplicated. Farina, corn-starch, fine flour, and refined sugar are the fashionable materials for the infant dietary ; but a worse selection could hardly be made. Wheat-meal bread, mush, cracked wheat, hominy, and roasted, baked, stewed or boiled apples, etc., are the proper solid food for infants from the first moment that they are able to take any kind. This plan of dieting will tend to secure the child against dysentery, cholera infantum, colic, gripes, spasms, convulsions, scrofula, “ skin diseases,” painful teething, etc., etc.

As to the error of adding starchy matters, under whatever guise, to the milk, Dr. Prospiro Sonsino,[†] of Pisa, in an article, entitled “ Researches on Infant Digestion,” proves, by a number of experiments, that there is a physiological or normal dyspepsia to starchy

* “ Physiological Chemistry,” Vol. V., p. 239.

† Dawson.

‡ *London Practitioner*, January 10, 1873.

food (absolute inability to digest) in the first portion of infant life. And Dr. Routh also protests against the use of all starchy matters for infants before they have their teeth. This view is also supported by Professors Huxley, Youmans, Dalton, and, I believe, all who have examined the subject.

As has been indicated, the chief cause of infant mortality is excessive feeding. Ever since time began the one great anxiety has been to keep the little darlings full of something from the time they come into the world until their little bodies are carried to the grave, or, by strange good luck, survive this treatment until they reach an age when an approach to regularity is exercised in their feeding.

During the first year infants are, as a rule, stuffed early and late, hence the greatest mortality is at that age. After this they are allowed more time between meals, and a less proportion die. For example: while about one-third of the deaths are of children under one year, only about one-fifth are between one and five years. After five years of age children are fed on something like the three-meal system, and comparatively few die between five and twenty years of age. It is, however, to be borne in mind, and in justice to be admitted, that, in the main, these constitute the toughest and therefore the "fittest" to survive.

In spite of these figures, or because their significance has not been noted, it has not occurred to the people to *begin* with less meals.

The farmer who wants to raise the best possible animal from the calf, lets the creature suckle in the

morning at milking-time, and again at night. He is wise enough to feed his calf only twice, and the result is, the calf thrives from birth, and sickness is unknown.

The same farmer has a baby born, and a contrary course is pursued, with a contrary result. Even before nature supplies the food—before the mother's milk comes—the ignorant nurse undertakes to supply the seeming deficiency, and doses the baby with sweetened water, cow's milk, safron, or the like, instead of giving nothing but what nature supplies, which, for the first few days at least, is sufficient and best.

The dosing referred to results in stomach-ache, and the cries of pain being mistaken for cries of hunger, down goes another dose, until finally, when the mother's milk does come, the child's stomach often is in a condition to revolt at anything. If the little victim goes along for a few weeks or months, it is generally fed every hour or oftener, unless it happens to be, as is often the case, in a lethargic state for several hours, sleeping off a surfeit as an adult sleeps off a "drunk."

It is often the case that an infant is eating and vomiting, alternately, from morning till night; indeed, so common is this that it is regarded as altogether natural. It is expected that the child will "throw up" continually, at least after being fed, and the nurse declares that "it is all right—nature takes care of all that."

It is not all right; it is all wrong. Nature indeed revolts at this barbarous treatment of a baby's

stomach. Early and late, often during the night, & through the day, the stomach is kept full and distended, every hiccough is an attempt of the stomach to eject its overload, or evidence of an undigested residue, and the habitual vomiting is simply the result of cramming, until the little, helpless babe has become a confirmed dyspeptic. The mother or nurse habitually flies to the sugar-bowl to relieve the infant's hiccough. But the remedy is worse than the disease; and although the hiccough may disappear, it will, if the habit be continued, be succeeded sooner or later by symptoms of deeper disease in the form of a so-called cold, feverishness, etc., the result of the excess of food and excess of saccharine matter.

It is not to be supposed that parents intend their children, at whatever age, to overeat, any more than they mean to eat to excess themselves. The trouble in either case is, they ignorantly believe that the appetite is a safe and the only guide, or if aware that there is a likelihood of injurious overindulgence, they have no definite knowledge as to what is a sufficient quantity for themselves or their children, at different ages. Hence, though individuals may mean to be conscientious in the matter, they will yet err in many ways unless they study the question intelligently and conscientiously, and with all possible aid from the observations and researches of others.

There is every reason for believing that dyspepsia—the parent of nearly all our ills—is the product of overfeeding in infancy, and confirmed by overindulgence through life.

Dr. Dawson gives his experience on this point "I am quite sure I am not alone in my experience of having seen very many infants in whom the cause of gastro-intestinal disorder was due solely to too much and too frequent nursing, and who were restored to health by remedying these abuses. And my experience in consequence has led me to believe that the majority of gastro-intestinal disorders of even the severest types are due to too much and too frequent nursing.

"But supposing we are called upon to attend a case which, from the above causes, is suffering from either vomiting, constipation, wasting, or diarrhœa, or two or three of these disorders together, what are we to do? Are we to remove the child from the breast for certain intervals? It may be said if we deprive the already wasted body of nourishment for any length of time, will we not run the risk of losing our little patient?

"To these questions I reply: *Starve the stomach! Give it rest!* Does not the vomiting or the diarrhœa tell us in the plainest language that the digestive organs need rest? Will we gain any benefit, I ask, from ejected or undigested food, even if it cause no severer disturbance? Certainly not. Is it not better by far that not even so small a quantity as a teaspoonful of milk be taken, if not retained and assimilated?

"Stopping all medicines in such cases, I allow the digestive organs perfect rest for six, ten, or twelve hours, according to the urgency of the case, generally giving nothing but a teaspoonful of cold water every

fifteen or twenty minutes, and when nursing is resumed, allow the child to suck for a few minutes only again nothing for five or six hours, and so going on for a couple of days.

"So successful has this method been with me, that, when strictly carried out, all nausea and vomiting will be found to cease at once, the small amount of nourishment taken will be retained and digested, and the organs return to their proper duties, and the child be restored to health.

"Constipation, too, so common in otherwise healthy infants, is generally due to excessive and too frequent feeding, and is the common accompaniment of the vomiting already mentioned. The explanation of this constipation is quite simple. The stomach being overburdened with food, and consequently overtaxed with work, each supply of milk, instead of being coagulated into fine and soft coagula, which are readily acted upon by the secreted pepsin, comes into contact with the semi-digested acid coagula of the preceding meal, and in consequence is coagulated more rapidly than it should be normally, the coagula being larger and harder.

"Such masses, if not ejected, pass into the intestinal canal, but little or not at all changed by the digestive process, will impact together on contact, and from their size and dryness are with difficulty passed along the bowels, thus giving rise to constipation, colic, etc. The unusual volume and accumulation of such curds will not unfrequently also cause such an irritation of the alimentary canal as to give

rise to an intestinal catarrh of more or less severity which may ultimately run into the severest form of intestinal disease."*

One cause of excessive feeding exists in the desire of parents to have a fat baby, and to be able to say that he gains a pound a week; most people, in fact, have a mania for fat babies.

Entire ignorance prevails as to what is the normal growth of an infant from birth.

During the nine months of foetal growth the increase, except in the case of monstrosities, is about one-third of an ounce per day, or two and one-half ounces per week. Why it should be deemed rational for this ratio to be increased *six or seven hundred per cent.*, directly after birth, is beyond my comprehension. In spite, or because, of this hot-house forcing during the first few months, the usual weight at, say, five years, is much less than if the rate of pre-natal growth had been continued throughout these years!

The excessive fat, so generally regarded as the sign of a healthy babe, is as truly a state of actual disease as when it occurs at adult age. Not only are the muscles enveloped with fat—they are mixed with it throughout, and so are the vital organs—the kidneys, liver, heart, etc. Dissection, in these cases, often discloses the fact that these organs are enlarged and degenerated with fat; the liver, for example, is often double the normal size. The disease finally culminates in one of two things—a considerable period of non-

* B. F. Dawson, M.D., New York.

growth, or a violent sickness, which strips them of the fat, if not of life.

Dr. Theodore R. Noyes, who perhaps more than any other living man, may justly be considered an expert in this department, writes: "I agree fully with your idea about fat in young children, and I have noticed that the children of spare parents who incline to phthisis in middle age, are very likely to take on the fat disease, as you call it, during infancy. I imagine that if we could take a view of the muscular and nervous systems of such an infant, apart from the fat surrounding them, we should find them *very lean and attenuated*."

We know this to be the case with animals. Mutton and beef when excessively fat have very little muscle, and this is so "tender" as to be hardly entitled to the name. And yet so little is this question understood that I often hear physicians, even, express the opinion that "a baby ought to be pretty fat or he won't have anything to lose when he gets sick!"

When it is considered that this substance is composed mostly of "waste, useless, and excrementitious materials which have accumulated in the cellular repository, because the process of alimentation was increased beyond that of elimination," is it not evident that the child who has most "to lose" is the one most likely to lose it through some violent demonstration of disease?

Instances like the following are common everywhere: A. B., at seven months, weighed twenty-five pounds; at twenty-three months, his weight was the

same, not a pound of increase in sixteen months. But there had been a complete transformation, brought about in the course of a long period of ailing and several attacks of acute disease. The child had lost a great portion of his fat, and had become taller.

This child was seldom free from "colds" while suffering from fatty degeneration, but now that he became free from the latter, his eyes were bright, head clear, and there was every evidence of good health, and I said to the mother: "Take warning by your past experience. You see him now in good condition, free from gross fat, cheerful, and active. Keep him in that state by avoiding improper food and by feeding him moderately and infrequently, and you will have no further trouble with him." "Oh, I mean to have him as fat as ever by winter," she replied. When fall came he had become fat, and on one occasion I remarked upon his difficult breathing and nose running, when the fond mother replied: "Yes, he has begun with his cold again, and I expect it will last him all winter—they always do!" And I have no doubt it will—if he lasts.

Such children, if they live, work out of the fat stage into a correspondingly emaciated stage, seldom retaining a fair degree of roundness all the way along, and that this is due largely to the first wrong, excess in diet, none can doubt. We see children everywhere at ten or twelve years of age, or perhaps at a much younger age, thin, cadaverous, with fitful appetites; eating at times like cormorants, of such things as they "like," at others having no appetite at all.

A well-fed child accustomed to a well-balanced diet, taken in moderation, will have no likes or dislikes to prevent an appetite for any sort of plain wholesome food, and will avoid either extreme, will be neither too fat nor too lean.

Infants are sometimes saved from this fatty degeneration and all its attending evils, through the mother's inability to supply an excess of food, and while she laments over his supposed misfortune, the baby is stretching out and gaining at a normal rate. Mrs. P., the mother of seven children—five now living—thus refers to her experience with her eldest, a boy: "Frank was a very poor baby, never seemed to take on fat. Well, the fact is, I suppose I almost starved him to death—didn't have milk enough for him—but he was the biggest young one of them all (!), more than I wanted to tug round—and there never seemed to be anything the matter with him—only I couldn't get him fat." Frank is a healthy, strong man now, of twenty-five.

Owing to a lack of knowledge on the part of parents as to the requirements of children as to kind and quantity of food, and of the symptoms of a badly constituted, or excessive diet, there are very few well-fed children, and, consequently, it is rare to find an individual who from infancy to adult age, has enjoyed the measure of health and comfort easily attained in most cases. The infant becomes excessively fat, and then follows one of three things—death; a saving sickness; or a feverish, fretful state, with a gradual reduction of fat, an emaciated stage, when perhaps

for a year his body and limbs resemble those of a calf, a kitten, or a young robin. Under this "raw-bone" state he grows as do the young of other species. The body and the limbs stretch out, and he grows tall. After a time the capacity for the digestion and assimilation of the excess of food, which he is always under temptation to swallow, is regained, and then begins another period of fattening, attended by the same dangers to which he was exposed in the first instance—the "second summer" trials so generally feared. This culling process goes on, in a lessening degree, up to about the age of five, when the spinning age is fairly set with the survivors, and there is a corresponding exemption from disease, the proportion of deaths from five to twenty-five being very small.

This view has for years been forcing itself upon my mind, until it has become a settled conviction, viz: that upon the specific gravity of the body depends its power to throw off morbid influences, and to maintain that just balance which is termed *health*; that is, just in proportion to the excess of fat and water in the composition of the tissues of the body there exists a susceptibility to epidemic or other diseases, while with bodies made strong with true flesh, and the minimum of fatty tissue, we are comparatively, indeed may become almost entirely, proof against all forms of disease.

And now comes Professor Gustave Jaeger, of Stuttgart, "who has proved," says Dr. Schlegel, in a recent essay, "that the specific gravity of different individ-

uals is very different, and that the state of health of those individuals is closely connected with their specific gravity. The greater the weight of the human body in comparison to the space which it occupies, i.e. the greater its specific gravity, the more able it is to resist epidemic diseases. Persons of a low specific gravity are taken ill from very insignificant causes, such as a cold, and are very susceptible to contagious diseases. Such persons have usually a fullness of the body, and are even corpulent, but just that which gives them a great size is useless ballast, viz: fat and water. These substances endow the heaviest bodies with a comparatively low specific gravity, giving, at the same time, to the constitution, little power of resistance."

Professor Jaeger has investigated these differences of constitutional resistibility by comparing the specific gravity of a number of persons with their state of health, and his conclusions have been corroborated in a most remarkable manner.

The German scientists are very much interested in Dr. Jaeger's discoveries, and have great faith in them. No one there doubts that he has discovered and proved beyond cavil that the power of the human body to resist disease depends upon its specific gravity, and this unquestionably is a valuable discovery to the medical profession.

That the specific gravity of the body depends, with adults largely, and infants wholly, upon the quality and quantity of the ingesta, no physiologist will deny. It is, of course, true that the occupation and habits of the adult, and the inherited tendency of

both young and old, would exercise an influence in this matter; but this in no way lessens the significance of the fact that in any given case the weight in proportion to bulk can be largely influenced by the diet. Some excessively fat people are, we know, small eaters, and such, while deploring their condition, are fond of declaring that it is not what they eat that makes them fat, but we can easily believe that a fast of one-fourth of the duration of Dr. Tanner's, would convince any one of them that food had some influence in the matter! Generally it will be found that moderate eaters who are inclined to obesity, are very fond of butter and sugar—using a large proportion of butter on the whitest (*i. e.*, the least nutritious, but most fattening) of bread, and that they like their coffee and tea quite sweet. But more especially is it true of this class that their “moderation” results from that form of dyspepsia which makes it physically impossible for them to eat largely,—nausea and lack of appetite, or a stomach literally diminished in size, forbid; while their excretory system is less efficient than the lean lank gourmand's, of whom it is said: “The more he eats, the thinner he grows.”

It is commonly considered that the infant's diet should be regulated by its appetite. “After all,” says one, “I believe that a boy is a good deal like a cabbage, that absorbs only what it needs.” This is an easy way of settling a question that is out of one's line of thought. I grant that if the *seed* was as pure and hardy; if the boy was outdoors the entire twenty-four hours, exposed to the rain as well as

the sunshine; if the cold night-winds blew over him as freely as over the corn and the pumpkins; if his food was as natural—as appropriate for his needs—as is that of the vegetables; and, more especially, if, like them, he “absorbed” his food, really, apart from the influence of a sensual and, usually, a depraved appetite,—if, in short, it were not for the unnatural conditions which surround the boy, there would be a strong argument in support of the cabbage theory; indeed, no one could, or would be disposed to oppose it. As it is, however, those who choose to be governed by it should give their children the benefit of the whole theory: cause them to *need* all the food they can eat, and they will not eat more than they need. They should have set before them only the plainest, most wholesome and most nutritious food; their clothing should be light, and exercise in the open air unrestricted; the living-rooms should be cool, the bed-rooms cold, and *both* thoroughly ventilated; and the same “instinct” that is to be their guide in diet, should direct them when to take off and put on their garments,—to cure a fever or prevent a chill,—and when to “come in and get warm.” In all these things they should be a law unto themselves; otherwise, the instinct theory is self-condemned. It is a foolish, because a one-sided, theory.

The vital importance of the question:

THE ABNORMALITY OF FAT,

can not be over-estimated. Looking through the animal kingdom, we find that, as a rule, *none* of

our domestic animals take on fat in early life. Whoever will take the trouble to examine a litter of kittens, will find that while they appear plump and round, this is due chiefly to fur, and not at all to fat. Unlike the human mother, the cat does not permit her young to suck as often nor as long as they want to (probably, however, owing to lack of milk, rather than to superior wisdom), and she often absents herself for five or six hours, thus giving the little gluttons a rest. It is only after weaning, and when fed by intelligent human beings, that frequent distention of the stomach does its perfect work, and we see the kitten with eyes staring from their sockets, running in circles about the room, and finally dying in convulsions.

We all know how thin and angular the calf is all the way along if intended for a useful life, and even when fattened for the market, he is little more than a skeleton compared with most infants at six months.

Young pigs, though plump and round, have no surplus of fat; and, after weaning, the wise farmer does not permit them to fatten until well grown. He who fattens the young pig never succeeds in raising the largest hog, but invariably has the chagrin of seeing his neighbor bear off the prize. The latter has learned that early fattening "stunts" the growth, and so he gives just enough to keep his pig a "good feeder" (*i. e.*, to maintain a sharp appetite) and growing steadily, and, when the large, healthy frame is thus secured, there is not only something to build on, but there is also a good digestion to build with.

Some of the largest and fattest hogs I have seen have been raised on one meal a day—the amount being such as they would invariably eat up clean before leaving the trough—and they were not heard to squeal throughout the day; and I have observed that the pigs that are fed the most frequently, are, like infants similarly fed, the ones who make the most discordant music.

Although the colt suckles little and often, he is not apt to nurse during the night, and, at any rate, the sum total of his diet *never suffices to fatten him*; and who does not know how carefully the trainer of the trotter or courser removes the last trace of fat from his favorite before entering him for the race? Fifty or even twenty-five pounds of extra fat would leave Rarus or St. Julien without a backer, if pitted against anything like an equal. In a pathological sense, horsemen may not understand that fat is disease; but, practically, they guard against it as they do against ring-bone, spavin, or a sprained ankle.

We all know that the *common* growth—or, rather, increase of *weight*—for the first two or three months after birth is from one-half to one pound a week. In point of fact this is altogether and always abnormal, and does not represent a healthy growth at all, but merely a rolling on of fat, and *means disease*. I will cite a typical case:

C. B. at birth weighed six pounds, and at five years of age he weighed forty-two pounds, and was regarded as a well-developed child. Here is an increase of thirty-six pounds in five years—an average of about

seven pounds a year. He really gained about a pound a week for several weeks after birth—weighing fifteen at three months—an average gain of three-fourths of a pound a week. For the next twelve weeks the average increase was one-half pound a week, bringing the weight to twenty-one pounds at six months. At this point there was a complete check, and he soon began to lose flesh, or *fat*, rather, and for the succeeding three months declined steadily, although *eating greedily* and vomiting freely every day. The bowels had become constipated, and this trouble increased until there was no movement except by enema, and then with great difficulty. Unmindful of the fact that the greedy little fellow had been running his digestive organs at high pressure, laying on fat, vomiting up what milk the stomach could not possibly retain, until at last no power remained to digest anything, the parents, under the physician's advice, began a fruitless search for something that might "agree" with the stomach. The child was evidently dying for want of nourishment, and the feeding was continued at intervals of three hours, in spite of continued vomiting.* The parents, although urged to give the stomach rest for which nature so strongly appealed, dared not make the change. At last the natural result, cholera infantum, followed, and death seemed near at hand.

* It is proper to state that this child, except during the first few weeks, was nursed only once in three hours, until he was weaned at nine months.

At this stage I was called to attend the case. I gave no medicine at all and no food during the night. At 7 A.M. I gave about two tablespoonfuls of cows milk, mixed as recommended elsewhere. Nothing more until noon, except a teaspoonful of cold water occasionally, with warm injections after each movement. At 12 M. the same amount of food was given as for breakfast, and for supper at 5 P.M. the same. *Every drop was retained*, or I should have decreased the quantity or omitted the midday meal altogether. A bandage wrung from warm water and frequently changed was worn almost constantly over the abdomen, and the feet and hands kept warm by wrapping in hot flannels. A comfortable night's rest followed, with but two or three movements. This treatment was continued, and it is sufficient to state that the cure was complete in three days, and nothing remained but to increase the quantity at each of the three meals, as the stomach recovered strength to bear it. This was done very gradually, and the child became the picture of health. Up to the time of its sickness it had never experienced a day of perfect comfort—crying and fretting through the day, sleepless at night, wetting six or eight times during the night, and often twenty times during the twenty-four hours.

After recovery, and on three meals, all troubles had disappeared, and thereafter scarcely a moment's discomfort was known. There has never been a lack of appetite—the growth has been steady from the time it was resumed. If at the first symptom of overfeed-

ing—abnormal increase of fat, hiccough, or vomiting—or later symptoms, chronic vomiting, etc.—the supply of food had been sufficiently reduced, all sickness would have been prevented.

The point I wish to emphasize is this: The child had from overfeeding arrived at a point where his organs of digestion could not perform their functions. He was *literally starving to death* on five meals, of nearly a gobletful each of cow's milk, and was raised from this condition, cut his first teeth, grew and thrived on *three* meals of about *two-thirds* of a goblet each. On the five large meals he appeared, and indeed was, hungry most of the time. On the three small meals he never exhibited hunger except at the regular meal hour. In fact the child's whole nature seemed changed; from being a torment to himself and parents, he became a constant comfort and joy to all of the household.

No definite rule can be given for the amount of milk necessary for a hand-fed babe at any given age. It will not, however, vary much from one pint for an infant of six months. This amount divided into three meals, say at 6 A.M., 12 M., and 6 P.M., has in my experience always insured the best results. The whole night should be devoted to sleep, and a child that is properly nourished—is not overfed during the day—will sleep soundly all night. Nor should an infant be *awakened* for food during the daytime, merely because it is "time," even if it skips a meal occasionally.

Can any one tell why it should be the ambition of

parents to roll on the fat at the rate of a pound a week for the first few months and have "the fattest baby in the neighborhood," and consequently the one most likely to die before it is a year old? The normal condition of man is not that of obesity at any age, and whether at one month, one year, or at forty, fat, beyond a well-rounded frame, is abnormal, and, therefore, disease.

We talk about "baby farming" and anathematize the starvation of the little victims who are put out to nurse with that object in view, while right in our midst, everywhere, north, south, east, and west, children are *starving to death* under the eyes of parents who would pay a dollar a drop for food to restore them. Healthy-born children, too, and surrounded by every requirement necessary to insure their living to adult age—every requirement except one, viz: the knowledge on the part of their attendants of the fact that the Creator did not design that a baby's stomach should be treated like a toy balloon! They are starving because of overfeeding to an extent that has so impaired the organs of digestion that no power remains to digest or assimilate the food, however much may be swallowed.

The present summer (1880) we have seen in the mortality reports of New York City, that during the week ending June 19th, there were 707 deaths. Of this number 386, or 55 per cent., were children under five years of age. The following week the total mortality was 1,038. Of this number, 713 (70 per cent.) were children under five years; 664 were children un-

der two years; 529, or more than half, were infants under one year of age! The record of the week ending July 3d was still more terrible, the number of deaths reaching 1,297, over two-thirds being little ones under five, and although I have not the figures for the younger ages, the proportion would be something above 650 of infants under one year.

That the hot weather had much to do with this fearful slaughter of the innocents, we can not doubt, but, let me ask, does this more than express the simple fact, though in misleading terms, that the excess of food that can be tolerated under the tonic and antiseptic influence of cold weather, *engenders disease during the heated term?* We do often see individual adults who have intelligence and conscience enough to regulate their own diet according to the weather, living in summer chiefly on green vegetables, fruits, etc., and who either skip the mid-day meal altogether during the heated term, or take dinner and supper together at two or three o'clock. But not one parent in ten thousand thinks to apply this principle to his suffering infant who knows no more than to swallow milk as long as it tickles his palate, and whenever presented—often to quench a burning thirst produced by the excess of food already swallowed.

Who can not confirm from his own experience the fact that excessive eating, of even a single immoderate meal, produces great thirst, and the necessity of drinking profusely to dilute, and wash away, the undigested, fermenting masses of food, and allay the internal

fever indicated by "heart-burn," acidity, flatulence, pressure at the stomach, etc.? Adults often know better than to increase the mischief by drinking milk—a food—instead of water, and yet when the similarly afflicted babe manifests its uneasiness, and need of something, that something is pretty sure to be milk—the very thing which under such circumstances it ought not to have.

When a vast audience is convulsed with laughter over Mark Twain's witty description of the experience of parents with their colicky babies, it may be well for them to forget, for the moment, the thousands of little audiences of two, or three, or four, gathered about the death-beds of emaciated little ones dying in convulsions, not of laughter, and that provoke no laughter, either on earth or in heaven. More than eight hundred such audiences in one city, in a single week, who can not force even a smile to their wan countenances, except it be, perchance, a smile of resignation to what seems to them to be a token of the chastening, though loving hand of God.

Reminded of these facts, does any one say that the picture is overdrawn—that the horrors of such experiences can be overstated? Language is not rich enough, the imagination of wits or philanthropists is not vivid enough, to more than faintly portray the suffering and the agony arising from this one source—ignorance as to the proper treatment of infants and young children, especially as regards their dietetic habits. Bad as the outlook is from a sentimental or emotional point of view, it is no less serious when we

consider the loss to the nation in these hundreds of thousands of premature deaths, and other hundreds of thousands of sickly, worthless lives resulting from the same cause—for the wealth of the nation lies more in its able-bodied citizens than in its lands.

So unvarying is the treatment and management, in all essential particulars, accorded to these helpless beings: so uniform the suffering, and wails, and tears: and so common the deaths, that people in general, regarding it as a fatality, give little heed to the question: little thought is bestowed upon the idea of possible improvement; the subject is tossed aside as lightly as possible; and the perils of infancy, together with the trials and tribulations of parents, are treated as a ghastly joke, a subject upon which the wits of high or low degree may harp at will, while the advent of a baby is rightly regarded by the young parents as the beginning of troubles, or at best as a "troublesome comfort."

One cause of this deplorable condition is, as it seems to me, that we have relegated this whole question to the nurses, who are not, as a class, noted for keen insight, or studious habits. And yet, strangely enough, our wives and mothers are forced to look to them for counsel and guidance in matters transcending in importance all others with which they have to deal. While men will hardly leave a valuable mare and foal to the care of an experienced veterinary surgeon, without personal supervision, they do not hesitate to intrust their wives and new-born infants

in many cases, to those of whom the most that can be said is that they are "good, clever old souls."

It seems to me that we have here a condition of things loudly demanding the attention of intelligent, conscientious physicians everywhere. The establishment of training schools for nurses is a step in the right direction, but these are, as yet, and, for a long time to come must be, too limited to be generally felt throughout the country. An imperative demand from physicians everywhere, for intelligent, teachable young women in this department, would assuredly be followed by an increasing supply.

One of the most frequent and formidable, though unappreciated dangers that young or old have to contend with, arises from that condition of the system usually denominated a "cold." These so-called colds are, in my opinion, in most cases, symptoms of a clogged condition of the system, produced either by eating indigestible substances, such as pastry, fats, etc.; by eating in excess of the requirements of the organism; or by eating at all when the body is exhausted by fatigue; the blood is poisoned by undigested, and, therefore, putrid food.

Colds are generally preceded or accompanied by a closed condition of the bowels. The catarrhal symptoms arise from irritation of the nasal mucous membrane, which proceeds reflexly from the stomach—the nose-running being one of nature's methods of cleansing the system. If now the exciting causes continue, either the appetite will disappear, compelling abstinence, or the irritation will increase,

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as the initial fever—the so-called cold—progresses extend “sympathetically” until the lungs are involved,* and the entire system dangerously, perhaps fatally disordered. It is this predisposition—this condition of blood-poison from the products of indigestion absorbed into the circulation—which forms the *basis* of all the filth diseases, as croup, diphtheria, typhus, typhoid, bilious, rheumatic, scarlet fevers, typhoid pneumonia, erysipelas, and the like.

Says Prof. Huxley, regarding this source of blood poison :

“But whatever the circumstances, if the quantity of food taken exceeds the demands of the system, evil consequences are certain to follow. The immediate results of overeating are lethargy, heaviness, and tendency to sleep. Overtaxing the digestive organs soon deranges their functions, and is a common and efficient cause of dyspepsia. If the food is not absorbed from the digestive apparatus into the system, it *rapidly undergoes chemical decomposition in the alimentary canal, and often putrefies*. Large quantities of gas are thus generated, which give rise to flatulence and colicky pains. Dyspepsia, constipation, and intestinal irritation, causing diarrhoea, are produced. If digestion be strong, and its products are absorbed, an excess of nutriment is thrown into the blood, and the circulation overloaded. If food is not expended in force, the natural alternative is its accumulation in the system, producing plethora and abnormal increase of tissue. This is accompanied by *congestion of important organs*, mal-assimilation of nutritive material, and *increased proneness to derangement and diseased action*. The excretory processes are likewise certain to be disturbed, which often leads to the retention of waste products, with *perversion and poisoning of the blood*, and a train of evil consequences.”

He was a wise man who originated the maxim, “if you stuff a cold you will have to starve a fever”; but the saying abbreviated to “stuff a cold and starve a fever,” and utterly misinterpreted, has caused a deal of sickness. The supposed injunction to eat freely

* See work on “Consumption,” now in press.

is usually religiously obeyed ; but when the natural effect is produced—when the fever assumes an alarming phase, the second injunction is unheeded ; or, perhaps, having conscientiously (!) tried the prescription for “cold,” and that proving a failure (?), they are hence led to distrust the fever remedy ! There seems to be an itching on the part of the friends and, not seldom, the attending physician, to feed the fever with something continually,—gruel, Granum, beef tea (which in chemical composition is almost identical with urine), milk and brandy or other stimulants, as if to insure the usual “run” of the disease until it shall have picked the patient’s bones.

Take care of the “colds” and the fevers will take care of themselves.

The most scrupulous care, however, if exercised only in the direction of wraps, avoidance of draughts, sudden changes of temperature, etc., will avail little more than to postpone and thereby increase the evil. In fact (so long as one continues to overindulge in diet) the more he is exposed to cold* and the less clothing he wears, the nearer he is carried, metaphorically speaking, to the polar regions where *surfeit fever* is unknown.

It needs to be impressed upon the minds of the people that it is not the large quantity swallowed, but the *right* quantity *properly digested* and *perfectly assimilated* that alone can insure the best results with either children or adults.

* The reader’s attention is directed to this point in the author’s work on “Consumption.”

Eustace Smith most truly says : * "The great principle at the bottom of all successful feeding, viz : that an infant is nourished in proportion to his power of digesting the food with which he is supplied, and not in proportion to the quantity of nutritious material he may be induced to swallow, is so obviously true that an apology might almost seem to be required for stating so self-evident a fact ; but experience shows that this simple truth is one which, in practice, is constantly lost sight of. That that infant thrives best who is most largely fed, is an article of faith so firmly settled in the minds of most persons, that it is very difficult indeed to persuade them to the contrary. To them wasting in an infant suggests the need of a larger supply of food ; every cry means hunger, and must be quieted by additional food."

When this matter is better understood, the rearing of children will be a delight in the household, instead of a torment from which so many shrink, and which some avoid at the price of guilt.

The constant feeding of children at any age, a custom almost universal, is extremely cruel, notwithstanding the fact that it springs from the kindest promptings of the human heart.

If the attendant were compelled to take food as often and in as excessive quantity as does the baby under her charge, at night as well as during the day, the abuse would soon be abolished in that family.

* "Hand-feeding of Infants," by Eustace Smith, M.D., etc.; *London Sanitary Record* ; also, *The Sanitarian*, New York, January, 1875

The cruelty of the practice would soon be made manifest.

That no infant can thrive unless well fed, admits of no question. The only point is, what does the term "well fed" imply? And here again there should be no difference of opinion, and the answer should be, the minimum amount of suitable food that will suffice to accomplish the best results, viz: a comfortable, happy, thriving babe, whose body and limbs shall be well-rounded with flesh, instead of gross with fat, and whose growth shall be uniform throughout its young life, and until the frame shall be fully developed.

It is my belief, verified by experience in the case of my own infant, and from other substantial proof, that three meals a day, with sufficient restriction at each, will accomplish this end, and are all that should be permitted from birth, and the intervals should be at least five or six hours between meals. If care be taken to guard against overfeeding at either of the meals, it is believed that the following high standard will usually be attained, viz: ease and comfort through the day and perfect rest at night; freedom from hic-cough, vomiting, constipation, "colds," and diarrhoea. There will be a steady gain in weight from month to month, by *reason of healthy growth*, without the abnormal accumulation of fat so surely indicative of disease.

Who could not rejoice at such a consummation, and especially in view of the fact that it guarantees the greatest possible happiness for the infant as well as for all who approach or have the care of him, and

increases the probability many-fold of his growing to hale, hearty manhood, with confirmed health and the best possible physique from any given stock.

So far from admitting a possible error in advising three meals only, I am convinced that, for a hand-fed babe especially, unless there be *careful restriction* of the quantity at each meal, *two would be better than three.*

Let us remember that cow's milk is not the natural food of the infant; that more time is required for its digestion in the stomach, and that it contains much more nutriment than breast milk; that it is natural to suppose that the calf digests his natural food more rapidly than the baby does its unnatural food. Now then, both being fed, say, at 6 A.M.—the baby, all he wants, and the calf, usually less than he wants—how can it be supposed that the baby is in condition to take a second meal without harm in three hours, when it is found that the calf requires twelve hours to digest his breakfast, and sufficiently rest the stomach, before another meal can be wisely given?

Again, if the calf, fed on his natural food, *requires* nothing more for twelve hours, how can we conclude that the infant, filled with food *much more nutritious* than its mother's milk, would need another meal in three or four hours?

Plain as they are, it is because these points have not been fairly considered by scientific physicians, generally, that the proposed reform was not adopted long ago.

For several weeks our child took an amount of cow's milk at each of her three meals

which, later, proved to be one-half of the proper ration for twenty-four hours, and had I, when I found that I was giving an excess, left off the noon meal, instead of reducing the amount of each one-third, giving the second and last meal just before bed-time, I do not doubt but that the result would have been quite as satisfactory.

It may be claimed that while one infant might be able to subsist, and even thrive, on two or three meals, another, and probably most infants, would starve unless fed oftener; but I am unable to find any basis for such a conclusion. In the feeding of horses, cattle, hogs, and men, it is found that the ration that suffices for one individual will suffice for any individual of the class. In this I do not consider the gormandizing capacity of individuals who can carry off, though to their hurt, double or triple rations.

"All men are *rudimentally* alike; and the body of each human being is made after a certain pattern, which pattern is in accordance with the general principles which apply to *all* individuals. The great principles upon which one man's body is built, by which it grows, by which it gains power, by which it maintains its material activities, and by which its life is kept within it, are principles that are applicable to *every* human body. There can be no mistake about this. One man, within the organic principles of his constitution, and within the range of the leading functional laws by which life is regulated, is a type of the whole race. The *special* differences are only subservient to the great uniformity."

"Diversities among men do not, in any way, affect the great constituent elements which belong to all."

.....
"Nature acts, therefore, in all *her* efforts for the good of man, in view of uniformities. In relating the sources of her own life to him, so that through them he can derive additional strength, she always acts, not in the light of the differences, but of the likenesses, which men show. She sustains life in the body, as God sustains it in the heart of man, with respect to those points wherein the individual man *agrees* with every other human being; and not in view of the differences between him and any or all other human beings. Her laws are made with reference to the principle of life, as it shows itself in all human beings; and it becomes not only a *general* fact, upon which, under *general* circumstances, one can rely, but it becomes a uniform, ay, a *universal* fact, that what will keep one man alive will keep another man alive."*

Our three-meal infant has doubled in weight at nine months, verifying, to that extent, my theory that the normal growth of infants corresponds to the (normal) foetal growth. She is *taller* than the average child at this age, and though less heavy than most children, she is more muscular, and, had I permitted it, would have become fat, for she has given abundant evidence of the ability to fatten rapidly on three meals. She was weaned at the age of four months,

* J. C. Jackson, M.D.

in order to ascertain by measure the proper daily ration.

During the month of June this babe, being then about six months old, was taking daily one and one-third pints of rich cow's milk. This proved too much. She was getting too fat, and I reduced the quantity about one-third. Moreover, the Jersey milk proved rather too rich, and I found it advisable to remove a small proportion of cream, and did so with advantage. During her seventh month her daily ration was one pint of milk. Now, nearly nine months old, she has daily one and one-third pints of milk, a little more than one cupful at each meal. On this she is thriving to my entire satisfaction, and for ease and comfort remains a unique specimen of infancy.

The following description, given in a brief communication to the *Boston Journal of Chemistry*, for July, was written just before I found it necessary to reduce her daily rations, but with the exception of a slight diarrhœa, following the ejection of a single meal, promptly relieved by total abstinence from all food except water for a day, and the reduction of the regular ration as before mentioned, it perfectly described her condition up to the present moment:

Her physical condition has been perfect throughout. She has uttered no cry of pain indicative of stomach or bowel disturbance, and has caused me no moment of anxiety or uneasiness since the hour of her birth. For ease and comfort and muscular strength, she has been a marvel to all who have observed her from day to day. There has been a complete

escape from the fat disease, with the pasty complexion so common to infants. The body and limbs have lengthened by normal growth, while remaining well covered and rounded with muscle, and the complexion has been and remains brown and ruddy, like that of any human being, perfectly nourished, who spends much of the time, as she has, in the open air, during the winter as well as since spring began. There has been entire exemption from hiccough, throwing up, colic, constipation, diarrhœa, and in fact from the endless variety of disturbances commonly supposed to be the natural and unavoidable experience of a pioneer in this world of sin and disease. Her breakfast at 6 A.M., dinner at 12 M., and supper at 6 P.M., are taken with a keen relish, fully satisfying her appetite, and keeping her throughout the twenty-four hours without any exhibition of hunger or lack of nourishment. Her sleep has been perfect, sound, and continuous from soon after supper to near breakfast-time. From the beginning she has been put down wide awake a few minutes after supper, with no occasion for disturbing her or her attendants, until her awakening in the morning. This also implies that she sleeps in garments as free and unconfining, and with the same security as to cleanliness, as is the case with healthy adults. In short, she has been a delight to herself and to us, fully meeting my most sanguine expectations, in a scientific point of view, thus far throughout her young life. While other infants have to be kept in arms much of the time to pacify them, or to be quieted by the breast or bottle every hour or two through the day, our "three-mealer" is a joy unto herself, requiring little more attention, except in the matter of locomotion, than a healthy kitten.

She seems unconscious of the possession of a stomach, or an appetite, except when food is presented, but when it is offered the appetite is sure to the last drop in the cup. She is the perfect embodiment of the adage, "Eat before you are hungry, drink before you are thirsty, go to bed before you are sleepy." Her three meals are food and drink, never given

in response to manifestations of hunger or thirst, but they effectually prevent that state.

The idea of a new-born baby being fed, from the hour of birth, but three times in twenty-four hours, is so entirely novel that the hourly experience of the first few days must prove of absorbing interest to every scientist not only, but to every conscientious thinking man and woman. I therefore introduce here a journal of the first week of this baby's life.

MONDAY, DECEMBER 15, 1879.—The baby was born at 4 P.M., and after proper attention, slept sweetly until 6 P.M., when she nursed until she seemed satisfied. An hour later, the first movement—the meconium—came. She passed the night in easy slumber.

TUESDAY, 16TH.—Baby slept until 8 A.M., awoke for breakfast, nursed and then slept until 1:30 P.M.; dined, and then slept until 3 P.M., when she was bathed all over in tepid water, appearing to enjoy it, after which she slept quietly until 7:30 P.M., and nursed for the third time. Fussed considerably for the first half of the night, and then slept soundly until 7 A.M.

WEDNESDAY, 17TH.—Awoke at 7 A.M., nursed several minutes, fell into a calm sleep which lasted until 10 A.M., when she had her bath. After a short nap she lay awake, staring about to familiarize herself with her new quarters, until 12:30 P.M., dinner. Suckled lustily until apparently satisfied, after which she slept soundly until 5:30 P.M.; nursed for the third time at 6 P.M. Thus far a comfort to herself and her attendants; is plump, round, and strong, at two days old. The trifling secretion of the breast for the first three days proves just the "medicine" needed. Bowels right, kidneys ditto no undue purging or wetting as with babies fed every two or three hours. The milk came about 11 P.M., when to relieve the breasts, and the baby being awake, we sacrificed her com

fort to her mother's. She appeared to enjoy the "sacrifice," but slept less comfortably for her heavy, late supper, her first "square meal."

THURSDAY, 18TH.—Awoke at 6 A.M. She suckled and then slept until 9:30 A.M., when the nurse gave her a bath. Soon after she fell asleep and slept soundly until about 12 M., when she dined. Thus far three meals prove entirely satisfactory to her, nurse, mother, and myself. During the afternoon she slept considerably, fussed a little—her only means of making known her needs of attention; lay awake an hour or more looking about—pursuing her education by the only means known to the fraternity—staring at everything coming within range of her vision.

FRIDAY, 19TH.—Awoke and broke the fast at 5:45 A.M., and slept. No crying thus far like colicky children. No appearance of pain or hunger. The time spent in "scolding" is as *five minutes* to the *hours* of many babies given up to loud crying. The first half of each night has shown some "fussing" (suggesting the thought that with babies, as with adults, retiring for the night on a full stomach, especially in case of two previous meals, is not strictly hygienic), but when finally settled to sleep, it has been sound and undisturbed until morning. 11:45 A.M. (six hours after breakfast), dinner. The supply being abundant, a little time at nursing satisfied her. She soon had enough, and was not tempted or urged to take a little more for the "stomach's ache," and to prevent the digestion of a fair meal. 5:30 P.M., supper, and then sleep.

SATURDAY, 20TH.—Awoke at 7 A.M. Breakfast after a long night of sweet sleep. More sleep till 10 A.M. Bath. Had a walk-round in the nurse's arms, and then slept until dinner at 12 M. A comfort all of the afternoon until she suckled at 6 P.M. No crying for the day. A little "scolding" in an easy way, preparatory, or as indicative of a movement of the bowels, or need of attention otherwise.

SUNDAY, 21ST.—Awoke happy for breakfast at 7 A.M., after

which she lay for an hour enjoying her mother's caresses, as the nurse says, "more like a child three months old than like a baby only six days." Able to hold her head steadily erect, no limpness of the neck. To-day, by a lucky circumstance—or rather, careful watchfulness—the nurse was prevented from mutilating the baby's breasts by "squeezing the milk from the little nipples to prevent broken breast." At 12 M., dinner. Nursed until the first indication of having had enough, when the nipple was withdrawn. During the afternoon baby was awake a good deal, but comfortable and a comfort. Waking and sleeping, the time passed until her supper at 6 P.M., soon after which she went to sleep. One "change" during the night, but otherwise uninterrupted sleep until morning. No "hushing" about the house. Coaling up the fire, opening and shutting of doors—nothing of this sort is done at peril of disturbing a restless, sleepless, irritable babe. Well fed and properly cared for, nothing disturbs her.

MONDAY, 22D.—Suckled when she awoke soon after 7 A.M., after which she lay sleeping by her mother's side until 10 A.M., when she had her bath and a walk-round in the nurse's arms for a little, and then was put down wide awake to fall asleep, and she slept until 12 M., and suckled. Sleep with her has not been a compromise or a surfeit—with rolling eyes and twitching of the facial muscles—but the calm, placid, unruffled sleep of well-fed infancy. At 6 P.M. she supped, and thus began her second week.

A story so monotonous may well end here. Suffice it to say that the diary was continued from day to day, until there was left no room to doubt the perfect success of the experiment.

For all practical purposes, it would seem that a single week's experience would suffice to overcome the stock objections to the theory of three meals a day. Certainly the baby was younger than she could

ever be again! It is entirely probable that her stomach would never again be so small, and that the food supply would not become any less nutritive or appropriate. From the objector's point of view, the first few days would be the most critical and afford the most severe test of the system; that is to say, while any healthy-born infant might not, probably would not, starve to death in the first week of trial, she could not assuredly *gain* and *increase in weight* on an absolutely deficient supply.

In the *Popular Science Monthly* for October, 1880, in an article on "Psycho-Genesis in the Human Infant," Professor Preyer says:

"My attempts to hold a child up straight were not successful for fourteen weeks. . . . After four months the child was able to keep its head well-balanced." Our three-meal baby held her head steadily erect at four days, and ever after. The grandmother made her first visit when the baby was nine days old, and, although jealous of our system of feeding, she felt constrained to declare that she "never before saw a baby of nine days whose neck was not at all limp—who could hold its head up without bobbing." Professor Preyer continues (and we are to suppose that he was describing a healthy German baby), "The power to sit up was acquired about the tenth month all at once, after the child had been kept up by artificial supports for several weeks." Changing the numeral tenth to fourth, this language describes the muscular condition of the infant I am presenting as a model of a well-fed babe. At four months she sat

erect on the floor without support, and also in her carriage, without even the necessity of buckling the strap in front.

I do not expect that, because of my own successful experiment—perfect and complete as it is in itself—every one will be induced to adopt the system at once. My own faith is by no means based upon this one experiment, nor indeed is it by one iota increased thereby.

I would not ask any intelligent physician to recommend the plan, simply because it has worked wonderfully well in this instance, but because the good sense and judgment of physiologists will indorse it on general principles, because of the further evidence I shall present, and because of the deplorable results attending the custom which has been so long on trial.

It has also to be considered that this babe has breathed a pure atmosphere all of her life, her home being ventilated with a view of the nearest possible approach to outdoor air and sunshine. There have been no sealed windows in winter, nor drawn curtains or closed blinds in summer. Her clothing day and night, from her birth, has been as loose and comfortable as possible. No diapers have been worn at night since she was three months old. In fact, her surroundings have been complete in a sanitary point of view. That this has contributed largely to insure the perfect ease and comfort she has enjoyed, none can doubt, but it could not be said to make up for an absolute deficiency of food, any more than that a superabundance of food will answer in place of pure air and discreet

management. And yet, when from a lack in this direction, which is well-nigh universal, the little ones are suffering, "fussing," food is usually offered as the only known panacea, and since it, of course, appeases them for the moment, it is ignorantly supposed to be the right thing.

It is quite common to hear mothers or nurses speak of the babies being "surfeited with the heat." The definition of the word surfeit is excessive eating and drinking, and it is only necessary to transpose the two words, and say "heated with surfeit," to represent the exact truth.

During the hot summer just passed, our little one has never lost a minute's sleep during the hottest night nor during her regular forenoon and afternoon naps. She has been fed from day to day, more or less, according as the weather was cool or hot, upon the same principle which regulates our own diet. This is eating for comfort, ease—the opposite of *disease*.

I once remarked to a clever old lady that babies were usually crammed full of milk every two or three hours, without regard to the weather or their needs, kept puking and purging, until finally they become constipated, and writhe and shriek with colicky pains, and then the nurse or mother wraps them in hot cloths, or turns them on their bellies and tries to jounce the wind out of them. "What is the good of all this?" "Why," she replied, rather nonplussed, "it seems as if we were *doing* something for 'em!"

Among the numerous causes of discomfort which

prevail in the nursery, and which lead to overfeeding, we have the injurious belly-band, tight as a woman's corsets; diapers pinned too snug about the waist and drawn so tight between the legs as to be insufferable; cavernous creases between rolls of fatty tissue where, over many square inches, the excretions of the skin must be reabsorbed, and for want of ventilation, such as is enjoyed by the free surfaces, sores are produced, which in turn are kept plastered with powder of some sort until the functions of the skin are wholly destroyed; tight "pinning blankets," worn also at night, while the parents enjoy the luxury of loose, simple gowns; the "breath of life" carefully excluded from the home, through the superstitious fear of damp air, night air, "draughts." All these and many other cruel and needless irritants has the baby to suffer, and when they have tortured him into worrying or crying, more food is given to tickle the palate, and yet more to drug him to sleep, and this failing, Mother Somebody's soothing syrup stupefies the brain, and gives him and his tormentors rest.

If the child be fed and dressed properly, and is otherwise rationally managed, there will be no mid night orgies, no sleepless nights on baby's account, and he will soon, indeed in a very few days, become so regular in habit that the bundled up, pinned up squares—so sweltering and injurious—can be entirely dispensed with at night and during its naps by day, and he may be safely laid down after supper for his ten or twelve hours of solid sleep, in garments as easy and unconfining as those deemed by adults so essen-

tial to restful sleep. A couple of squares, smoothly folded under the hips, will be all the safeguard needed. There will be but one or two movements a day, except as the result of excessive feeding, and these can by an observing attendant be readily foretold, the "chair" brought into requisition, and as early as the first few weeks regularity of this function can be secured—a matter of vast importance, which, it need scarcely be said, should never be deferred to a more convenient season. The action of the urinary organs will be more regular, and less excessive, with the well-fed infant than is the case with infants fed in the usual way, and wetting the bed will seldom occur after the first few months, except as the result of inherited weakness, and this will scarcely be found incurable if a correct regimen is persisted in. Indeed, children may in very many instances, I believe, be kept from the beginning on a plane above their inherited tendencies.

For the first few weeks the little one should be suffered to remain in its own bed (which, by the way, should be a mattress of some sort, never of feathers) the greater portion of the twenty-four hours. It may be taken up, of course, when necessary, and occasionally for a few minutes' change, and to pass inspection before friends, but it is soon tired and should be replaced on its bed, which is far the most comfortable place. If properly fed and kept dry and warm, the infant will not suffer from colic or other pains, and will not require (*unless taught to demand it*) taking up—except at the judgment of the attendant—rarely

to stop its crying; and later, when of an age to be up and about the house most of the time, he may be put down, and happily, wide awake for his regular sleep, whether at night or during the day, or to amuse himself with playthings on the floor, where, if he has a wise mother, he will spend most of his time during the day, except when weather and other circumstances permit his enjoying the outdoor air.

A well-managed baby will require very little attention from the mother or nurse, but will amuse himself, *and them*, sitting on the floor with his playthings. If, however, he is from the beginning taught, as is most frequently the case, that he must be kept in arms a great part of the time, he would be more, or less, than human if he did not demand it. And yet the happiest and most comfortable place for him is in his crib, or carriage, or on the floor. Parents too often injure themselves and their children by teaching the latter to be exacting. It is not "neglect" to teach even the youngest child self-reliance by a good deal of judicious letting alone.

Infants are often kept in arms, rocked, tossed, trotted, and stuffed with food, in the vain effort to quiet them, when, if they were not suffering from surfeit, simply lying down in a pure atmosphere—the habit once formed—would give them rest and peace and sleep. These injurious motions may, after a time, dizzy the little one into a semblance of sleep, from which, however, it will usually start up upon being laid down, to be again and again hushed or walked to sleep, until at last, utterly exhausted, it may settle

down for a long rest; but when sleep is thus induced it is unnatural and unsatisfactory.

At this period of life habits are very easily and speedily formed, hence an unwise or indiscreet attendant can readily make a new-born babe troublesome and exacting, and can soon transform a comfortable, easily-tended baby into one requiring constant attention, to its own sorrow, as well as that of its friends. These are the children who *seem* to require constant feeding.

"There is perhaps no question upon which the profession, as well as mothers and nurses, are more at variance than the character of the food to be given in place of breast milk. One physician, mother, or nurse, will recommend cow's milk, pure; another, skimmed milk; another, the same, diluted with a little water; another, water with a little milk; another, cream and water; others, milk with corn-starch, arrowroot, crackers, rice, barley, oatmeal, and so on *ad infinitum*. And yet, with all these varieties of nourishment, infants suffer and die from wasting and gastro-intestinal disorders, and mother remains in ignorance as to the cause. Her child, weakly, perhaps, to begin with, is filled with a quantity of such food, which it is unable to digest. Its stomach and bowels, revolting against the burden imposed upon them, endeavor to get rid of the offending matter by vomiting and diarrhoea; a gastro-intestinal catarrh is set up, which still further reduces the strength; every meal causes a return of the sickness; the bowels are filled with fermenting matter, which excites violent griping pains, so that the child rests neither night nor day; after a longer or shorter time it sinks, worn out by pain and exhaustion, and is then said to have died of 'consumption of the bowels.' Such cases are very common in the experience of every physician who has seen much of the diseases of children, and when seen early enough may readily yield to ap-

propriate treatment; but, unfortunately, it is too often the case that, instead of recognizing and removing the cause—the bad feeding—the child is dosed the harder and fed the more the weaker it gets, and at last dies, in spite of all that was done.”

CONSTIPATION.*

In cases of difficult “passages,” it is common to add barley or oatmeal to the milk; but while this may “loosen the bowels,” it does not cure the difficulty. It only produces more or less purgation because of the *indigestion of the meal!* For my own part, speaking with relation to the constipated habit so common, I consider that we should look for a remedy to the promotion of the general health, and having decided upon the diet, we should avoid frequent changes of amounts and proportions, which are always made at the risk of the system not getting accustomed to any one variety. A daily kneading of the bowels, gentle but persistent, for ten or fifteen minutes before breakfast, will usually, in a little time, induce regular action in the course of the day, and is far better than purgative medicines.

With regard to the various advertised foods, “substitutes for mother’s milk,” while many infants manage to subsist, and in some cases thrive on them, still, in my judgment, the best substitute will be found in cow’s milk, prepared as follows, and I feel safe in saying that it will invariably be taken with a relish by, and agree with, every healthy infant, if offered in proper quantity and at proper intervals:

* Sometimes there is no occasion for a movement for a day or two—no evidence of a desire for one. To use purgatives or injections in such cases is mischievous. A change of diet, or in the weather, may temporarily affect the babe. In bringing one over-fed bottle-baby to three meals, four days passed, and then he had an easy, natural movement; then three days, and a fourth; then two. After this he had regular daily passages.

The approximate amount of cow's milk for each meal for an infant at the age of nine months, is about one cupful. [The Leinroth babe, at the age of *twelve* months, and at the time his father wrote the letter describing him (see Appendix to Fourth Edition), was taking a medium-sized coffee-cupful of milk prepared as directed below three times a day.] Very rich milk will often disagree with infants, and is less wholesome for all than pure milk containing a medium proportion of fat. As to the best mode of preparation I adopt the language of Prof. S. P. Sharples, who has, more than any other man in New England, if not in America, made the subject of milk a special study, and has made hundreds of analyses of the fluid :

"The best way to prepare cow's milk for a young child is to allow it to stand for a few hours until a portion of the cream has raised ; then carefully remove the cream. At each meal take the proper potion [say for a babe at nine or ten months, one cup ; at twelve months, one and one-third ; at fifteen months, perhaps one and one-half ; or vary the quantity at different meals, as, more in the morning, less at noon and at night, as experiment may prove best. No hard and fast rule, except as to number of meals, can be laid down for the million.] Place the vessel containing the potion in a dish of hot water for a sufficient time to warm it. Cream or very rich milk is totally unsuitable for a young child. Children will be found generally to do well on Ayrshire milk, since this is not much richer than skimmed Jersey."

If this, or similarly constituted milk from common cows can not be obtained, partially skimmed Jersey should be used. Prof. Sharples also alludes to what he terms a common error—that of trying to obtain one cow's milk. He is probably correct in saying that the milk of a herd is more uniform than that of any one cow, unless exceptionally fed. Says Prof Sharples :

"Above all, do not add cane sugar or water to milk. The cane sugar is almost certain to sour the stomach, while water reduces the amount of flesh-forming constituents in the milk and distends the child's stomach with an unnecessary amount of fluid."

Offer a drink of water occasionally between meals—a teaspoonful or two, for the youngest—and whenever baby is fractious see if he be not thirsty. *Never* deprive a thirsty babe of water, nor offer milk instead. If the child is disposed to drink ravenously, it indicates severe congestion of the stomach and, perhaps, of the intestines, and a need of omitting the next meal, or of making it a very light one, to avoid serious gastric trouble which might occasion the sacrifice of several meals from loss of appetite during a dangerous illness. Occasions of this kind are almost impossible to avoid—for we always lean toward excess, as the safer side, and the only thing is, to apply the remedy promptly: stopping a single meal will often ward off a severe illness. A small dose of the right remedy, taken voluntarily at the right time, will often save Nature the necessity of *enforcing* a long course of “natural medication.” Frequent small drinks of water, or perhaps of hot and cold alternately, will prove curative in cases where there is severe internal fever. A very thirsty child will, if permitted, invariably drink too much at a time, and thereby increase his thirst by increasing the congestion that occasioned it. Hence the advantage of giving small draughts at frequent intervals until he has had, finally, *all he wants*. If this plan is adopted there need be no fear of diarrhoea in consequence of an excess of water: if any looseness of the bowels should result it will prove curative, and should not be “checked”: it will cease when the cause of it is washed away. Pure water

is the natural cure for summer complaint—“loose bowels.” The true principle of feeding, for old or young, consists in furnishing a properly-balanced diet in such quantity, and at such intervals, as shall maintain the appetite perfect, and yet prevent all indications of hunger or thirst.

The amount designated is ample, indeed in most cases too much, for an ordinary infant at nine or ten months. Always use the bottle. Drinking is not natural—the milk is swallowed too rapidly; indigestion with flatulence and colic result. Natural food, in appropriate quantities, eaten naturally ensures digestion and thrift. Increase of fat, “stuffing up,” “snuffles,” “cold in the head,” throwing up, lack of appetite, restlessness at night, feverishness, thrashing about or crying in sleep,* etc., indicate (1) foul air, (2) overheated rooms, (3) excessive clothing, (4) improper food, or overeating—perhaps all these causes united. Hence, when disease appears the attention of parents should be directed to the above conditions. They should always consider real, not imaginary causes. For example; feverishness (which in all disorders exists to some extent) arises from foul not fresh, from hot not cold, from dead not living, air; excessive clothing keeps the heat in—less clothing permits of its escape, etc. Infants are usually overguarded at every

* Parents often ignorantly ascribe these troubles in case of older children, to their “carrying their play into their sleep,” “they have played too hard.” In almost every instance the trouble is caused by the child’s eating too much supper, or too soon after his hard play, before the body is sufficiently rested. After violent exercise there should always be a sufficient period of rest before eating, or indigestion and disease will surely follow, sooner or later.

HOW WE FED THE BABY.

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point—except one, viz, the one I have kept so plainly in view throughout this volume. It is safe to say that in a thousand cases of so-called colds, not ten are due, even indirectly, to exposure to cold; excess in diet being both a predisposing and exciting cause. I have invariably obtained the best results in case of children, however fed, from abstinence for six or more hours, and entire abstinence at night, where there was nose-bleeding, stopping-up of the air-passages, difficult breathing, or any of the troubles mentioned, and, if necessary, lessening the time of nursing—diminishing the regular ration.

This simple rule, intelligently applied at the first appearance of sickness, would prevent three-fourths of the disease and suffering and deaths among children of any age.

There are instances when the organs of digestion are so badly diseased that the only hope lies in absolute abstinence from food, saving pure water alone, for a sufficient length of time, to permit the subsidence of the irritation. To swallow food at such a time is like attempting to fire up the engine of a wrecked train before putting it back on the track. Nor is it sufficient to be guided by "appetite" alone, for in instances most requiring temporary abstinence there may be a morbid appetite which so far from indicating need of food, is simply evidence of stomach inflammation, to the utter exclusion of the gastric juice necessary for digestion. Pure water will better satisfy this appetite, and is the thing needed to quench the inward fire consuming the vital organs.

There will be, from one or another cause, sometimes hidden or obscure, attacks of disease where the morbid influences have been so powerful as to destroy all chance of recovery—as a train may be so badly wrecked as never to run again. In neither case would an attempt to fire up change the result beyond, in one case, hastening death and adding to its pangs, as in the other only loss and hindrance would result. The human train, in cases of extraordinary vitality, or when the hurt is not of a deadly character does often regain the track, in spite of all violations of this principle, but in no instance without danger and delay. It is next to impossible to apply this principle in practice, so deep is the prejudice against what is termed the starvation cure. And, without doubt, this is a wise provision on the part of the Creator, for if fasting were as agreeable as feasting, or was equally favored by parents in the care of their young, while deaths would be less painful, there would undoubtedly be more of them.

A patient, Mrs. S——, had so overnursed her newborn babe, that at ten days old its stomach could retain nothing. I advised less frequent nursing, but still the babe would throw up everything, and it appeared as though hers was a hopeless case. Her weight at birth was only three and one-half pounds, and the prospect of even “holding her own” was gloomy enough. I was satisfied that entire rest of the stomach was the only hope, and yet I was aware that the order to offer her nothing for several days would be received with horror, and would not be obeyed, so

I resorted to strategy. I told the nurse to administer a little pure, cool water occasionally through the day, and to simply moisten the baby's lips every hour or two with a rag dipped in the mother's milk. "In this way," I said, "she will obtain sufficient nourishment to keep her along and yet the stomach have time to rest and get cured." This was done, and for nearly a week she took nothing but small rations of water and the infinitesimal amount of milk absorbed by this moistening of the lips. The result was a perfect cure, and, when nursing was resumed, careful moderation, as to quantity and frequency, enabled the little one to grow and thrive, and she is now an active healthy child of ten years.

The quality of the milk, for hand-fed infants, is a matter of deep concern to many parents, and without doubt it is impossible to get too good a substitute for breast-milk, but it is vastly more important to have the milk fed in such quantity and at such intervals, that it shall not grow putrid in the alimentary canal to poison the blood, instead of being digested and assimilated. And again, while it is wise to have the bottle and nipple scrupulously clean, of what avail is all this care, if this nice sweet milk, from an immaculate apparatus, is fed so often, and in such excessive quantities, as absolutely to prohibit its remaining sweet an hour after its ingestion? Better, perhaps, that the milk should sour occasionally, and that the bottle should be rank for want of care, if by this means the baby is saved from swallowing an unneeded meal—better sour outside, than inside, the baby.

Although it is the rule, rather than the exception no good reason can be given for a child's habitually hiccoughing or 'throwing up its milk, any more than for a man's sitting at table and stuffing himself, like an old Roman gourmand, until he vomits. Dr. Dawson says on this point:

"The ejection of milk after nursing, which is ignorantly considered by many to be the sign of a healthy child, and therefore not to be interfered with, in fact denotes overfeeding, and is the effect of reflex action, excited by an overdistended stomach—nature thus protesting, in language most plain, against the greed of the infant and the ignorance of the mother. As my experience has taught me, most infants who thus throw up after eating, suffer also, sooner or later from enteralgia and constipation, and other symptoms of indigestion, which latter are permanently relieved only when the greed of the child is restricted."

If this course be taken at the first symptoms of indigestion—hiccough or vomiting—a comparatively small reduction of food will answer, and the child be kept in good condition; but if delayed very long, the irritation of the stomach may increase until not a spoonful can be wholly retained.

The advantages of the system of alimentation here recommended are many and obvious. Let us briefly consider a few of them. (1), The mother is not sapped to furnish an abnormal quantity of poor milk, to the injury of both herself and child. (2), The infant is receiving regularly and appropriating perfectly the proper quantity of rich, nutritious food. (3), The appetite is regular, because the stomach and bowels are

in condition. (4), He will never have what we understand as the morbid, dyspeptic appetite—always craving food—because (5), his whole system is perfectly nourished. These points gained, who can fail to see the grand results to all concerned?

Indeed the thought once fairly considered, it is not difficult to find abundant argument in its favor. It is entirely rational to conclude that if an adult, working hard early and late, with brain and muscle, finds three, and in many cases two, meals not only sufficient, but best; while persons of sedentary occupation find increased health and strength from only one meal; surely a new-born babe, with no care, no anxiety of mind, and certainly less physical labor, especially during the first few months, with simple growth to provide for, requires no more than three.

It is a fact that in infancy all the processes of life are more rapid than at adult age, but this is equally true with all animals, and yet no one thinks of letting a calf suckle every two or three hours. In a natural state, to be sure, on the prairies, they do suck little and often, but for size and quality, who would think of comparing scrub stock with our domestic animals, at any stage of life?

"The baby's stomach is so small," says the pessimistic nurse. It is as large as an adult's, proportionally. "Its food is not hearty?" It is as well suited to its requirements as in the case of the calf that suckles but twice, and this applies with still greater force when he is taking the calf's food—cow's milk. "So soon digested—its little stomach is soon empty?"

Then the sooner at rest. Even the heart, and lungs, have their distinctive periods of rest, between the beats, and respirations. It is the perpetual and eternal work of the stomach, with no rest, no cessation, except that which comes from exhaustion, which plays such havoc among the little ones.

The time required for stomach digestion, in the case of infants, can not be actually known. It is believed, especially in the case of hand-fed infants, that three or four hours are required, and no longer time is necessary for many articles in our own diet, and it is not uncommon for overfed infants to throw up undigested food five or six hours after feeding, when sleep, or some other cause, has permitted so long an interval.

Indeed, no logical, or physiological, reason can be given for feeding an infant more than three times in twenty-four hours. As we have said, even with three meals, care is needed to prevent excess, for the babe can not be expected to have more discretion than its parents, and it has been truly said by an eminent authority that "it is probable that all civilized people err in this respect." The greedy infant will continue to suck, after the eye of the intelligent observer discerns plain indications of its having taken sufficient.

A healthy babe fed but thrice daily from a full breast or bottle will not hesitate very much in its sucking until its stomach is full enough. Its appetite is not as soon appeased as in the case of infants fed at all hours of the day whose stomachs are kept distended with undigested food. Who has not observed

the latter at times howling with "hunger," and, when given the breast, suck but a minute, or less, and then either fall into a doze, or howl louder from stomach-ache? However, in any case, if the baby throws up after nursing, either the stomach already contained undigested food, or too much has been given. With intelligent care, the mother can soon learn from its manner at what point of baby's "loafing" the nipple should be withdrawn to avoid the excess indicated by vomiting. It is not probable that when vomiting does take place the stomach simply yields up the surplus. More likely, certainly in the later stages of the disease, less is retained than if the little gourmand had been stopped at the point when he was observed to flag in his efforts. Still, for obvious reasons it would seldom be wise to put more into a stomach thus irritated, until the next meal hour. Where there is an absolute deficiency of milk, the babe will suck and rest alternately for a long time or until tired out, without, of course, getting enough, and emaciation will follow. Infants have barely escaped death by starvation though sucking every half hour, before the cause was discovered. In such cases the meal should be supplemented by the bottle or the infant weaned. Usually, however, even part of mother's milk is preferable to weaning.

It may be asked why, if the system here recommended be the only correct and safe one, has it not been long ago discovered and generally adopted? This question is asked regarding every tardy reform. The horrors of irregular and continual feeding have

been so conspicuous that here and there an individual, as we shall see further on, has had the good sense to discover the true and only cure, and they and their infants have realized the advantage of it. None of these individuals, however, have set themselves up to reform the world, nor, so far as I am aware, have any of them made any attempt to spread this gospel of peace to the household.

Many mothers have had the courage and good sense to practice regularity and extend the intervals to four hours, with great benefit to themselves and their infants, but these spaces between meals are still too short. The stomach, although at first able to clear itself of one meal before the next is encountered, is forced to go to work again too soon, and later this excessive labor exhausts the muscular power of the stomach; the supply of gastric juice is not forthcoming to preserve and digest unneeded food, which, if not thrown up, remains to putrefy and poison the blood.

Whenever the new system shall be generally recommended by family physicians, it becomes only a question of moral courage on the part of the mother. It is so hard to listen to a baby's cry, so trying to the nervous system, and although one brought up in this way will thrive better and cry less than *that child* would if reared under the common practice, still it will at times, from one or another cause (some wrong condition, readily removed in most instances), fret and worry more or less, and it is so easy for the mother to convince herself that it is a "hungry cry," and it is so easy to pacify it for the moment by nursing before

time, that she is tempted to do, what so many parents do all through life to the lasting injury of their offspring—purchase present ease by yielding to the ignorant demands of those whose right it is to be guided and controlled by, instead of guiding and controlling their parents.

Is it objected that no immediate general reform is to be expected, and that throughout all communities the majority of children will still be fed in the usual way; will still be seen at play with hands full of cookies and pockets full of peanuts, and that on every hand some dear lover of the little ones will await to offer a lunch of fruit or confectionery, while parents in general fear nothing so much as a little stomach rest for their darlings, or at least are apt to yield more or less readily to the request for more money, more candy, more food, even after having already given too much—since all these temptations will still abound;—is it objected that to restrict here and there a child during its years of infancy is to increase the danger from excess whenever he might happen to be left to himself under circumstances rendering excess possible? Should we then do evil to lessen a possible or probable future harm? Should we overfeed our babies and young children—make them dyspeptic, and so less sensitive, or less liable to such blows—so that those who live through it may not die of acute disease from an unaccustomed stomach distention? Or, in other words, should we knowingly subject them to chronic disease to save them from a possible acute attack? Who would argue that we should accustom ourselves and

children to bad air in our homes because, as a rule, our neighbors' homes, and the school-rooms, churches, and lecture-rooms are unfit to breathe in? It is true that not one home in a hundred is even decently ventilated; but there is no motive for this, except ignorance as to the importance of pure air, or what degree of ventilation is necessary to insure it. It might as justly be advised to accustom our offspring to an impure moral atmosphere that they may be less sensitive to the immoral atmosphere of the saloons and dance-halls, and less shocked by the chance oaths and obscene utterances sure to be overheard now and then.

While it can not be denied that "it is desirable that from their first years they should begin to learn, experimentally, the good or evil consequences which naturally follow this or that conduct"; and that we should "aim, therefore, to diminish the amount of parental government *as fast as we can substitute for it in our children's minds that self-government arising from a foresight of results,*" we should not permit ourselves to fall into the error of diminishing restriction, in any direction, any faster than is indicated by the lines I have italicized, nor to forget that, as the author quoted above (Herbert Spencer) himself says: "In infancy a considerable amount of absolutism is necessary." This is no less true with regard to the physical than the moral education, or the intellectual.

The infant who is saved from distending his stomach with food up to, say, four or five years of age, will have a double safeguard against gourmandizing when left to himself; there will be no craving for stomach

distention, as with children whose stomachs have been constantly on the stretch since birth except during the intervals when nausea and lack of appetite have prevented; and if, under special provocation, he should largely overindulge, the contrast between the condition of ease and comfort habitual to him, under the wise restriction of his parents, and the *malaise* or, perhaps, acute pain he is experiencing from the violation of a natural law, would prove a salutary "object lesson," if the occasion were discreetly utilized by the parent. It is the overfed infant whose inflamed stomach has a never-ceasing craving for food, or something to appease the "gnawing" sensation, often leading him to swallow pins, needles, tacks, bits of thread, yarn, and even to devour his boots and stockings; in short, it is the overfed babe who becomes a "cribber," to use a phrase familiar to horsemen, and which fitly describes the disease likely to result from the prevailing custom of excessive and too frequent feeding.

THE CHARACTER OF THE MOTHER'S DIET is of the utmost importance during the lactation period. The scorbutic diathesis induced by a *deficiency of vegetable food*, especially the grains (whole product) and fruits, exerts a powerful influence upon the infant's health, the milk secreted being deficient in certain vital constituents.

Cases are on record where a change in the mother's diet—the avoidance of meat, pastry, spices, hot sauces, tea, coffee, chocolate—and the adoption of a generous diet of plain wheat-meal bread (varied with

rye, corn, and oat-meals), milk, and fruit, has rapidly restored infants dying of cholera infantum, without aid from any other source.

The woman who lacks a reliable appetite for any sort of plain, wholesome food, is not a well woman; if she indulges in that which is unwholesome, she can not maintain good health; if she be overfed, abnormally fat and plethoric, she is a sick woman; and such mothers can not supply a perfect food for the nursing child.

Much sloppy food, hot drinks, profuse drinking between meals to "force the milk," are injurious to both mother and child. Much animal food is not advisable either in winter or summer, and in the latter season especially should be avoided altogether.

There will be no lack of appetite for plain, wholesome food, if the mother applies in her own case the principles herein advocated, viz, to eat at regular intervals, not more than three meals, and, while eating enough, never in excess of the requirements of the organism. Nausea, lack of appetite, fitful appetite, "gnawing" at the stomach—the latter so generally mistaken for a demand for food—all result from excess or the use of unwholesome food or condiments.

Much might be said as to the habits of the mother during the gestation period. False delicacy* often

* Is it not a sad comment upon our civilization, that while men, women, and children may watch with equal interest and delight the swelling of a lily and the birth of the flower, the growth and birth of a human being—a creature in God's own image—is considered a vulgar and shameful thing?

prevents her from taking the needed outdoor air and exercise, which evil would be in a measure offset by corresponding abstinence in diet; but, unfortunately, false notions as to the amount of food required lead to excess, causing digestive disturbances and a multitude of disagreeable symptoms, popularly supposed to be unavoidable at this time.

The pernicious idea that she "must eat for two," induces the mother to indulge, while the appetite lasts, in an extra quantity of food, sufficient to nourish a hard-working adult, instead of merely supplying the material for a simple growth of *one-half an ounce per day!*

According to the report of an institution conducted on the Community plan, not one healthy-born child has ever died there. Since September, 1869, fifty living children have been born, and seven others have been brought in by their parents; there are therefore in the children's department fifty-seven of all ages up to eight, and *not one death to record*. In no other community does there exist any approach to such immunity from infantile diseases, and in no other section of the civilized world are infants fed from birth but four or five times in the twenty-four hours, and but three times "from the earliest possible moment at which the mother's mind can be disabused of the notion that more frequent feeding is desirable."* While I believe this system of alimentation to be one of the principal causes of complete exemption from

* Letter from the physicien in attendance.

mortality among these infants, while the great world outside is an infant cemetery, there are other considerations of importance well worth careful study. There the principles of physiological parentage are sought to be maintained. Parents themselves live with a rational regard for the laws of health, which are well known, and their offspring are, consequently, an approach to what the Creator designs all children to be ultimately—healthy-born indeed.

In the world at large the greatest care is exercised in the breeding of horses, cattle, sheep, dogs; in fact, everything that is "worth a dollar"; no pains or cost are spared as to the parentage of the future draught horse, roadster, or trotter; with what intelligent care we study the question of health, temper, size, depth of chest, etc., for the animal having a money value; but when the question is that of "clothing an immortal soul in human form," anything is good enough for a covering.

There are already, however, indications here and there of advancement in this respect, and individuals are becoming alive to the importance of the subject. The health-reformers are making themselves felt in this matter, and since their efforts are being seconded by the public utterances of such teachers as the Revs. Henry Ward Beecher, E. H. Chapin, Mrs. Livermore, and others of equal eminence, as is already the case, we may well be hopeful of still greater improvement in the near future.

As to the detail of feeding, after the first two years, the report referred to says: "We give our children

ripe fruit freely (only, however, as a part of the regular meal) after they have learned to eat solid food, and avoid the habitual use of bland starchy foods, fine flour, arrow-root, etc., as much as possible.

"They eat no meat until five or six years old."

When our infant (born Dec. 15, 1879) was about six weeks old, so perfect was her condition as to thrift, comfort, and vigor; so far superior to any infant at that age it had ever been my lot to see—and I have made this question a special study for some years, and under peculiarly favorable circumstances—that I resolved to write to the physician of the aforesaid Community, describing her condition and our system of feeding, asking his opinion as an expert, as to whether this was an exceptional case, or whether it was probable that the plan would work successfully in all cases.

In his reply, under date of Jan. 26, 1880, he says:

"Your experience with your own child is very interesting, and is, I believe, what would be the case in the large majority of healthy babies. My experience has been confined to the Community, but as far as it goes it confirms my opinion that night nursing should be dispensed with. But this depends entirely upon the disposition of the mother, for the temptation to still the child by the breast, or the bottle, is almost irresistible to all mothers, and it requires the exercise of exceptionally strong moral power to defer feeding even when convinced of its benefit. The only way I have ever succeeded has been by converting the mother to a voluntary assumption of the task of getting rid of night nursing as likely to save worry on her own part and sickness on the part of the child."

"I have never known," he continues, "an instance which was not benefited by abandoning night nursing and getting down to three meals a day at as early a period as the mother could be thoroughly convinced. This latter is the real problem."

It is a well-known fact that in adult life, violent emotions or states, as grief, rage, fright, disappointment, pain, have the effect to impede or altogether prevent digestion, while a uniformly happy state is efficacious in promoting digestion and assimilation. It can not be doubted that these causes operate in a similar manner in infancy. Hence a child that is easy, comfortable, and happy, will digest and assimilate his food in the best manner, and "a little will go a good ways." On the other hand, a babe that is constantly fussing or crying, that is, suffering some physical inconvenience, will not digest his food as well as would otherwise be the case. Nor does it suffice to repress these manifestations of disease by violently rocking, tossing, or trotting the patient. On the contrary, such treatment is of itself promotive of disease. Crying is, with the infant, simply a manifestation of pain or discomfort, rarely a symptom of hunger, and never of a depraved nature, as so many would feign believe. According to Dr. Tanner's experience, fasting—in the case of a healthy person—causes no painful sensation, except, more or less, during the time from the fifth to the tenth day of *total abstinence*. How then could we suppose any infant to be crying from hunger when rarely, if ever, does he experience an interval of more than

two or three hours between meals? That infants do suffer continually from irritation of the stomach and bowels, and that they fuss and cry mainly from this cause, is true without doubt; but so long as every one who approaches, or has the care of them, has a mania for feeding, we can easily believe that the disease is not caused by lack of food. That nursing or feeding will for the moment still the crying, is no evidence to the contrary. The craving of the adult dyspeptic is likewise temporarily appeased by the ingestion of food, but the effect is to aggravate rather than cure the disease. The copious drinking of hot water not only has the effect to distend the stomach and appease its "gnawing," but is also curative in its effects. I am frequently called to attend infants where the only description of the symptoms the mother can give is that, "he cries all the time—nothing can quiet him." It is of no use to ask how he is fed, for the answer is most likely to be, "As often as he wants it," or, at best, "I *try* to make him go two hours." It is my invariable rule, therefore, in these cases, to order entire abstinence from its ordinary food, for six to twelve hours, and the frequent administration of *very warm* water in doses of one, two, or three tablespoonfuls, according to age of the child, as often as he manifests thirst, or, at any rate, until the crying ceases. In cases where there is violent pain, fuller doses of hot water, accompanied with copious warm water injections, and hot fomentations to chest and abdomen, will in nearly every instance produce almost magical results, whereas ordinarily, in the ab-

sence of peremptory orders to the contrary, the little sufferer, during an afternoon of torture, might be induced to swallow three or four meals of milk, each one adding to his pain and peril.

It is not the purpose of this work to inquire what percentage of infant mortality is due to unphysiological marriage, as relating to the health or temperaments of the parents. We do know, however, that under certain conditions, parents, themselves possessing great vitality and destined to long life, either have no offspring, or their children are puny, feeble, and doomed to an early and miserable death; or, if inheriting sufficient vitality to live, it is often to become inmates of lunatic or idiot asylums.

In the most unfortunate instances, the best hygienic management can do no more than mitigate the symptoms—extend life a few weeks or months, perhaps, and prevent or lessen the suffering. It can not eradicate the seeds of disease and death when these are overwhelming.

My chief purpose has been to show what system of alimentation is best adapted to extend the life of infants, however born. Nor am I considering the desirability of extending the lives of the puny and mentally or physically defective children. It does seem to me, however, that if people will permit themselves to marry without regard to the question of offspring, and when their children come, make it a question of the "survival of the fittest," we owe it to humanity to give them a less wretched and painful death than results from the miserable custom of cramming

Better even, adopt the method of the Spartans, who froze their delicate and puny babes; or, of the African tribes, who feed them to the crocodiles.

I have recently learned of the following remarkable circumstance in the family history of Mrs. S——, the wife of a regular physician at present practicing in Brooklyn, N. Y. When her first child was born, and during its earliest infancy, her husband, owing to uncontrollable circumstances, was away from home, and, instead of a regular nurse, she had for sole companion and help a young girl as ignorant as herself. Strange as it may seem, the young mother conceived the idea that babies were always fed like grown people (three times a day); and, being young and healthy, with an abundance of milk, as she herself tells me, "Ella had all she wanted morning, noon, and night." This went on till the babe was six months old, when the grandmother made her first visit, and then there was some "good advice." She was horror-stricken at the idea of only three meals, and sought to effect a change; but the little one was so perfectly well and hearty, that the mother persisted in her course, and the child was raised on three meals from birth. I am assured by the mother that she was a remarkably good child, very little trouble, and singularly exempt from all physical inconveniences—"getting her teeth without knowing it."

When her second child was born (a boy) she was surrounded by friends, had the "advantage of a good nurse," and, when the idea of three meals was broached, there was so much opposition, that she at

once abandoned all thought of trying the plan that had worked so happily in the first instance, and the boy was nursed every two or three hours and once or twice during the night, and, as she says, "he was a terribly cross baby!" It is not difficult to explain why the first child was "so good" and the second "so cross."

The daughter is now about sixteen and the son fourteen—the former the most robust of the two.

A remarkable case, in that it was the outcome of a young mother's own thought, without advice from physician or friends, was recently brought to my notice. Mrs. Adolph Berg, a young woman whose husband is connected with an hygienic establishment in New York, whose first-born is now eleven months old, has fed the infant but three times a day since he was six months old. I asked her how she came to adopt so unusual a course. She replied that she hardly knew, but that she had observed that often when the baby was comfortable and happy before taking the bottle, he would soon after begin to fuss, and for a long time would be hard to manage, and not seldom would be in pain; that whereas she had been accustomed to let him have his bottle "when-ever he wanted it," which meant, as she said, when-ever he fussed or cried, she became satisfied that he was being overfed, and so she extended the intervals and fed at regular times.

Finding some improvement, but with still much chance for more, all at once she began giving him his first meal at 8 A.M., some two hours after he awak-

ened in the morning; for she had observed that, since she had left off giving the bottle after 7 P.M., he awoke happy after his night's rest, and remained so until after feeding commenced for the day. She offered a certain quantity of food, and no more, at this breakfast at 8 o'clock A.M., nothing more till 2 o'clock P.M., when the same quantity was offered and taken with a keen appetite, although there had been no fussing or demand for nourishment during the six hours' interval. At 7 she gave a very small drink of milk, and soon after put him to bed wide awake, where, after a little cooing and playing, he went off to sleep, which continued uninterruptedly until about 6 in the morning. She has never had occasion to regret the change from unsystematic feeding to this method of regular and infrequent meals. She very wisely says that another time she should *begin* right, and nurse or feed but three times a day.

The boy (and he is a lusty, springy, muscular little fellow as any one could wish to see), now at eleven months, has a common tea-cup full of plain wheat-meal bread and milk at 8, the same at 2, and about half a cup of clear milk at evening, and no other food or drink during the day. He is twenty-nine inches tall, is growing finely, and shows plainly that he is a well-fed babe.

A young couple at Hadley, N. Y., whose infant boy had been a constant sufferer with colic during his seven months of life, and had by his sleeplessness at night caused them endless trouble and anxiety, although fed on the three-hour system, were induced

to try him on three meals instead of the five he had been having, and in a few days they wrote me: "R—— has been so much happier since your visit; he sleeps now all night and is every way improved."

Dr. Franklin N. Wright, in an article on "Management of Children," in the *The New York Medical Eclectic*, speaks of an infant seven months old, for whom he was called to prescribe for "cramps and fits which had afflicted it from birth." Believing the cause to have been overfeeding, he directed the mother to nurse the child but three times daily—morning, noon, and night. She did so, and the result was a speedy and a permanent cure. He also relates the case of a very intelligent lady who took charge of an infant whose mother died in child-birth: "She began by feeding it as much cow's milk, properly prepared, as it would take three times a day, but no oftener. Remarking upon the sequel, she said: 'A more healthy, thriving, robust child, I have never seen. It had none of the illnesses to which children are subject; has continued in perfect health up to the present time, and is now fourteen years of age.'"

Dr. James C. Jackson says: "Parents can rest assured that this manner of rearing an infant not only would not endanger its life, but would add vastly to the probability of its continuance."

A gentleman of Lime Springs, Ia., relates a circumstance in the life of his daughter which is interesting in this connection. At the age of eight months this little girl began to have fits, and would have as many as seven or eight daily, some days more, and no day

passed without a number. Having some years before adopted the two-meal system for himself, he decided to try this plan with his baby. After a trial of three weeks there were no more spasms, and none for eight weeks, nor until the father's absence of two weeks, during which the mother increased the number of meals, with the result of a return to six or eight spasms a day. When the father came home he again induced his wife to try the two-meal plan, and "in one week all signs of spasms disappeared, and there were no indications of a deficiency in diet."

M. Augusta Fairchild, M.D., thus describes* a model babe: "Her mother did the *best she could* for Bessie during the ante-natal period. She lived after the hygienic regimen adapted to such cases, and lived a free, happy, active, healthful life. Bessie came a year ago last August, a happy, healthy child, a welcome guest to her parents' home. For three days after her arrival she was put to the breast regularly, but given no other food until nature gave it in her own good time and way.

"She never had colic; but *if* she had presumed to so distinguish herself, we would have put dry, hot flannels across the abdomen, heated her feet, given hot water to drink and a full enema of warm water." This treatment, with temporary abstinence from food, never fails.

"At six months she took her three meals a day and rested all night."

* "How to be Well ; or, Common-sense Medical Hygiene," by M. Augusta Fairchild, M.D. Fowler & Wells, New York.

She further adds: "Bessie had no trouble with her teething. We were all ready to give her a warm injection to wash out the bowels if she had diarrhœa, and put on the wet bandage over the abdomen and back, covered with dry flannel—to be worn when she was feverish—and to sponge her little spine in hot water occasionally if she fretted, and to give her a dry rubbing and airing night and morning. She had these latter at any rate, and lived out-of-doors in the sunshine. She had a full bath about twice a week, though she had a daily sponging under the arms and about the groin; in fact, when her diaper was removed she was usually rinsed clean and dried thoroughly, and a diaper was not allowed to be placed on her the second time without being washed."

I am far from asserting that infant mortality would wholly cease with the adoption of this system, confining infants from birth to two or three meals a day, although it is my firm belief that it would preserve the lives of three-fourths of the healthy-born infants who die before entering the third year.

There will still be occasion for the exercise of care to guard against excess and improper substances, and there can be no absolute security against disease without due regard for *all* the laws of life.

I am free to admit that under the watchful care of an expert, an infant might be fed once in three or four hours without great danger—I would not say without harm; but since children are fed, with rare exceptions, by those who have little idea as to the proper amount of food required, or that there should

be any limit other than the infant's appetite; and are unqualified for recognizing the symptoms of excess when these appear; we have practically to choose between two or three surfeits and a greater number, in advising parents on this subject: for the greedy infant will fill its stomach to distention at each meal, if permitted, while the appetite lasts, and when there is lack of appetite, in such cases, even a teaspoonful is excess.

But since it has been clearly shown that an infant will be perfectly nourished on three moderate meals, and since it is evident that there is the minimum of danger with this number, as compared with a greater number, in any hands, it seems to me that there can be no sound argument in favor of more frequent feeding, as a rule. Where there was positive evidence of an inefficient supply of breast milk—where the nursing infant should show positive signs of inanition, grow at all weak or emaciated—I would urge, in place of trying an extra nursing, that the effort first be made to increase the flow of milk by means of a more nourishing diet than the usual one. Unleavened bread, or mush, made from the unbolted meal of wheat, rye, or corn, has *very much more nutriment*, pound for pound, than is contained in beef or mutton, notwithstanding the fallacy that classes the latter as "hearty food." A generous diet of bread, milk, and fruit will enable any "natural mother" to furnish an abundance of rich milk to nourish her infant on three meals, and is the diet best adapted in any case for the nursing woman. If, however, the public mind could be dis-

abused of the notion that only fat babies are "nice"—if we viewed them from a muscular, instead of a fatty tissue, stand-point—there would seldom be occasion to complain of their want of thrift.

It is quite commonly considered that the young infant requires, "like the whale, an envelope of fat as a means of equalizing the temperature." But the question arises, does the envelope of fat accomplish any such purpose? I firmly believe that it does nothing of the sort. On the contrary, is it not reasonable to suppose that just so far as the normal state is departed from, so do we depart from the standard of *good health*, which alone can maintain an equalization of the temperature?

Says an eminent authority, "Corpulent persons, who are surcharged with carbon, do not bear cold better than lean persons, who have little; in fact, they are, other circumstances being equal, more sensitive to it." This statement entirely coincides with my own observation. May we not account for this by the fact that the capillary vessels, not being increased in proportion to the abnormal increase of the bulk of the body, are, consequently, unequal to the task sought to be put upon them? Besides, all abnormal conditions of the body tend to interfere with the integrity of the circulation and impair its power.

The hibernating animals go into winter quarters with a great store of fat laid up in the autumn. But does this have the effect to keep them warm? Far from it—"the temperature of the blood being lowered nearly to that of the air, and many of the vital func-

tions entering a state of abeyance. The power of the will over the muscles is quite suspended, and respiration is nearly abolished." Something analogous to this state is observed in the case of grossly fat babies—a lack of keenness of intellect and activity of body. The offspring of intelligent and vivacious parents often present an appearance of dullness quite in contrast to the manner and action of healthy, well-fed babes. Later on, the survivors, after learning the use of their legs, "run off the fat," and become brighter in appearance and more muscular—exercising far more and eating less frequently, and altogether less in amount in proportion to their needs.

In case of monstrosities of fat at birth, the aim should be to gradually reduce the disease by attention to the mother's diet if the child is nourished at the breast, and to such restriction of the infant's diet, as to amount and frequency, as may be necessary. The mother should abstain from eating or drinking fatty or saccharine matters, especially if she herself is inclined to fatness; and if the flow of milk is profuse, her diet should be curtailed sufficiently to cut off the excessive supply. If the obese infant be hand-fed, the diluted cow's milk should be given without the addition of cream and sugar, and if necessary, still further diluted, and the amount of food as a whole should be such that the change to a normal state of flesh should be slow, but sure.

Leaving out the exceptional cases—monstrosities, more or less gross, the result of a bad regimen on the mother's part during the gestation period—most in

ants are at birth fair samples, as to fat, of what may be considered as the normal state to be maintained throughout the period of infancy and childhood. At birth there are no rolls of fat in the groin or elsewhere, no deep creases where powder seems necessary to prevent suppuration. Keeping in view this normal state, and maintaining it by a diet sufficiently abundant, but restricted enough to *prevent the fattening process from gaining the ascendancy over, and retarding, the development of the bones and muscles*—therein lies the true principle of alimentation.

With a rigid adherence to this principle, and the equally important one of maintaining a pure atmosphere in the nursery, the death of a healthy-born child under two years would soon be regarded as an unusual occurrence, and infant mortality would be almost entirely confined to the children of the ignorant or those who did not practice the means of prevention. Cholera infantum would be almost unknown, "teething sickness" a thing of the past, and the little ones would be in a condition to combat successfully the various infantile diseases or escape them altogether.

Extending the principle through life, more of our youth would be free from the delicate condition now so common, the effect of past and present over-indulgence; temperance in all things would much more abound, and the race would progress much more rapidly toward the ultimate physical perfection—a sound mind in a sound body—designed by the great Creator.

WEANING.

A Southern physician, of some note, in a letter to the author, and referring to the case of sick infants—sick from constantly overeating—and the great difficulty he found in getting mothers to restrict the infant's diet, however urgent he might find the necessity for such action, said: “. . . . If the mother be one of the overtender-hearted sort, God help the baby, for you can not.” Herein lies the whole difficulty usually found in weaning an infant, either from the breast to the cup or the bottle, or from the latter finally when it is found desirable to put the infant on a more substantial diet, viz, the lack of knowledge on the mother's part, that her infant can not be harmed by entire abstinence for a reasonable length of time; and the lack of a brave heart, or “the courage of her opinions.” The baby “coaxes” or cries; the mother does not know that in nearly every instance it is a dyspeptic, because overtaxed, stomach that leads him to make the demands; and even when directed by the physician to withhold food for a time, either in case of illness, or to produce an appetite in the case of the infant she desires to wean, she is so “tender-hearted,” or more truly, tender-minded, that she will often yield to the infant's demands, to his hurt, and to her own perplexity and inconvenience. Mothers often, and quite commonly, take a pride in not considering their own needs except to violate them; indeed, there is altogether too much of the spirit of martyrdom with them when it appears to be a question of their own

real, or their infant's supposed, needs. This would not be deemed necessary could they but know the fact that in most instances the infant is not only not benefited by the mother's extra sacrifices, but more often injured physically, and morally as well.

Mothers who may read this book and become converted to its theory of diet, will find no difficulty in weaning their babies; they are virtually weaned already; for not being excessively, or too frequently, fed, the appetite will be sufficiently healthy to accept needed food whenever, and however presented. They have learned, too, that in case of rebellion to new forms of diet, no harm can arise from "skipping" a meal; and until an infant has grown into a child who can talk and reason and remember (and then, if well trained, it should be no less easy), his mind can be in a moment diverted from the attempted meal, so that in case of refusal to take it in the new form, it can be passed; and before fasting shall have worked other than benefit, he will be so entirely converted to the new process as to have almost forgotten that he has been "weaned" from anything.

IN WEANING FROM THE BREAST TO THE BOTTLE, I would recommend that the noon nursing be lessened somewhat, and the bottle offered at night, that is, for the evening meal; and that the amount should be minimum rather than maximum, because the infant being unaccustomed to cow's milk, and the latter being much "heartier" than mother's milk, there is extra danger of overtaxing the stomach, or, in case of perfect digestion and assimilation, of overloading

the circulation, thereby predisposing to disease. Having accustomed the infant to the bottle for *one* of his three meals, it becomes an easy step to make a further change, which may be done in a few days, if absolutely necessary, although radical changes are not desirable. If, however, the baby is rebellious and declines the bottle, better deny him the breast altogether. He will take to the bottle when he gets hungry enough. So long as he is accustomed to nursing once or twice a day, and to asserting himself, he will keep it up until he finds out who is master! He would not be very bright otherwise! Use whole milk (see page 71). Doubtless cow's milk is best when first drawn, warm from the cow, and unchanged. In some cases, as for a very delicate child, it might be imperative to milk three times a day, at least the little that would be needed. Never give him enough to distend his stomach, nor to prevent him from having a sharp appetite. Never press him to take a drop in the absence of evident relish. Remember always that cow's milk is more "solid" and difficult to digest than breast milk. An over-full meal will always do less good than the right amount, and often do more harm than none at all.

WHEN TO BEGIN FEEDING.

When the mouth bristles well with teeth, allow a little "chewable" bread, best made from unsifted whole wheat meal (honest Graham). Give it *dry*, and also begin the use of fruit. After the dry bread is eaten

then offer the bottle. Increase the bread and fruit ration gradually. I would strongly recommend the continued use of the bottle so long as milk forms any part of the child's diet. In no other way will he take it slowly enough to prevent flooding the stomach, and consequent indigestion. All milk-eating creatures are and should ever be sucklings. At least milk should never be drank like water. Finally, of one thing we may rest assured: When weaning-time comes, no child will suffer himself to become too hungry, *i. e.*, he will never refuse *needed food*, to his hurt.

BEST TIME FOR WEANING.

In the absence of particular circumstances compelling premature weaning, I believe that the mother's milk, providing the mother be in fair health, and the babe evidently thriving on her milk, is the best food for the infant during the first eighteen months, and even until the end of his second year. Could all mothers become interested to learn, and be persuaded to practice, a truly hygienic regimen, there would be more of their number who could experience the joy of nursing their babies as nature intended; and, too, more of them who would have this truly holy desire; for a correct regimen exercises a deep influence upon the mental and moral, in consequence of the improved physical, state. Next to breast milk, and better than very poor breast milk, comes *pure* cow's milk, as before stated; and, as a general rule, I would repeat that milk, in one or the other form, should continue to be the sole diet of the infant for at least a full year

and not unfrequently the time might, with advantage, be extended throughout the greater portion of the second year.

There are good grounds for preferring the cooler months of the year, for weaning from the breast, and in general I would recommend an observance of this rule, though I do not hesitate to say this is less *vital*ly important under the system herein recommended, and where the least approach to *surfeit* is religiously avoided; this is the principal danger.

HOW TO WEAN THE MOTHERS.

As one of my most valued correspondents, a physician who has enjoyed a very large practice for thirty years, said: "This is the chief problem in your reform." If the mother can banish from her mind the idea that her babe requires constant or frequent nursing, and become persuaded of the truth of the position taken in this work: that it is every whit as wrong in principle as if she herself were to take a meal or a lunch every two or three hours; could she set aside all prejudice and exercise her reason in the premises, with a view of deciding whether she prefers to follow in the footsteps of her mother, who, without thought, simply followed *her* mother, grandmother, great and great-great-grandmother, or to consider that in this most weighty matter the experience and teachings of the eminent authorities herein quoted must be a safer guide—could she put herself in this position for *one moment*, the victory
be won, and not in favor of ignorance, or cus-

tom. So long, however, as any physician hesitates which side to take—whether to remain in the ruts made by our grandmothers or to come up on the grand highway of the new order of things and preach against a custom which fills the grave-yards with little skeletons and the land with mourning while it fills their pockets with money—while any physician hesitates in his choice, there seems to be some excuse for the young mother who, filled with love for her dear babe, and ignorant herself as to the principle involved, permits herself, between the grandmother and the aunts, uncles, and cousins on the one hand, and ever so reasonable a treatise on the other, to be carried away by the great pressure, and to follow the old fashion. Many mothers, however, will be weaned from the custom. The most intelligent and most conscientious will be convinced, and a few such, here and there throughout the world, will become missionaries in the good work, and much good will be done. Could the mother of the subject of this sketch be permitted to communicate personally with every intelligent mother in the land, the reform would receive such an impetus as would decide the question in a single generation. This is her prayer this moment:

“‘Oh, had I the wings of the morning, I would fly to the uttermost part of the earth,’ and compel the long-suffering and half-distracted mothers to listen to the story of our baby’s life. I would beg and implore them, as they value their little ones’ lives; as they love their babies and seek their own and their little ones’ best good, I would entreat them to follow the example I have set them and thus make their babies a

help to them instead of a hindrance,—an inspiration by reason of health and happiness, instead of a weight upon mind and body by reason of the endless train of evils that so often result from the old way."

The following letter is a fair sample of those received daily during a temporary absence :

" BIDDEFORD, Me., *September 14, 1880.*

" MY DEAR HUSBAND :—As usual, I suppose my letter this morning will begin and end with Alice. And I know you will not object to this, for every time you look at her or hear her merry laugh, you see in her the realization of all your hopes and prayers for a pathway out of the wilderness in which the mothers of the world have been wandering in all the generations past. Alice is now, as I write, standing alone, with just a touch of her fingers on the window-sill, while in one hand she holds her rattle, and she is shaking it with all her might, while the school children are crowding about the window, an admiring audience truly. Only think, only nine months old and almost walking, while —'s baby can not stand alone at ten months! — says she means to begin to-morrow and feed — our way. Isn't that a victory for us? What should I do if our baby was like Mrs. —'s? Poor woman, I do pity her so. I told her the other day how Alice slept at night, and what caused it. And you know neither she nor her husband ever get a good night's rest. She replied, 'My baby wouldn't be the same. Why *won't* she just try it? I have no patience with such women. . . . I thought I would say something besides baby talk, but I haven't much—my mind is so full of her, and I know it is not painful to you to hear about her. You must hurry home. She grows every day, as I can see by her sleeves growing shorter, and she is as fat as *we* want to see her, although some people would like better to see another *chin or two*, instead of the beautiful little single chin she has. . . .

" Your affectionate wife,

FLORENCE."

WHICH SIDE WILL THE FATHERS TAKE?

The accompanying paragraph, clipped from a Boston paper, explains itself, and indicates where the fathers will stand on this question of reform:

"CHILDHOOD'S APPEAL.—The above is the title of a very handsome eight-page paper, which is used daily at the fair in aid of abused children, in Horticultural Hall. Mr. Mark Twain being invited to contribute something to *Childhood's Appeal*, responds briefly and feelingly as follows:

"HARTFORD, November 30, 1880.

"Dear Editors:—I do it with pleasure . . . but I also do it with pain, because I am not in sympathy with this movement. Why should I want a "Society for the Prevention of Cruelty to Children" to prosper, when I have a baby downstairs that kept me awake several hours last night, with no pretext for it but a desire to make trouble? This occurs every night, and it embitters me; because I see now how needless it was to put in the other burglar alarm, a costly and complicated contrivance, which can not be depended upon, because it's always getting out of order and won't "go," whereas, although the baby is always getting out of order too, it can nevertheless be depended upon, for the reason that the more it gets out of order, the more it does go.

"Yes, I am bitter against your Society, for I think the idea of it is all wrong; but if you will start a Society for the Prevention of Cruelty to Fathers, I will write you a whole book.

"Yours with emotion,

MARK TWAIN."

HEALTH HINTS.

CLOTHING.

Although at one time a believer in the theory that, on account of our extremely cold winters and variable climate, a good deal of clothing was essential to health; I find in practice that it may easily be carried too far; and I have been forced by overwhelming evidence, gathered during the past few years, to modify my views on this question, and to take issue with those health-reformers who still hold to the plausible theory. Other things equal, the child who is overwrapped will have more "colds" than the one who would, by some theorists, be considered underclad. I continually see children suffering from excess of clothing; and oftener than otherwise the little ones are forced by their over-careful parents to undergo such an amount of clothing, and "tucking up" in bed, as literally to constitute the "dry pack," a sweating process, which, however desirable under certain conditions, is tolerable only for short intervals, being very depleting when long continued. It is impossible to intelligently consider this question apart from that of diet, so intimate is the connection between them.

For example, the amount of clothing that would

be appropriate when associated with a limited diet, would be altogether excessive for the child whose diet was unrestricted. Horsemen understand this principle, at least in part, and in proportion as their stables are warm and their horses well blanketed, they effect a *saving* in hay and grain. Were they to feed as liberally under such circumstances, disease would surely result.

However much we might scorn the idea of a pecuniary saving in a baby's diet, when the price of excess must be paid for in *disease* we may well count the cost. The influence of clothing and artificial heat upon the digestive and vascular systems is considered on pages 40 and 52.

The clothing of the infant should be sufficient for his needs—not relating merely to the season of the year—the almanac has little to do with this question, at least so far as concerns the offspring of the wealthy or well-to-do; for usually they live, the year round, in an atmosphere all too warm and close. When the weather is hot or the dwelling overheated, the less clothing the better.

THE SUMMER NIGHT-DRESS should, except perhaps during the coolest nights, consist of a single gown made of cotton, linen, or other light material, and nothing else. On the hottest nights, when the air seems stifling, even this may be removed, except when mosquitoes abound. *In winter*, the night-dress, if the sleeping-room be quite cool, should consist of a long, loose, and loose-sleeved, soft-flannel gown; under some circumstances a sleeveless flannel shirt may

be added. In warm rooms, or if the babe be feverish, he will kick himself bare, if possible, and be all the better for it. Mothers are often needlessly alarmed when, even in winter, the little ones by kicking and thrashing about strip themselves so far as possible; it is one of nature's febrifuges. There should be no tight bandage or other injurious appliance about the waist to restrict the free circulation of the blood and the ample ventilation of the skin. Dr. Hanaford, speaking of the needless and injurious bands, or swathes, says: "If possible there is far less occasion for these for the child than for the mother, while the child is injured far more than the mother. This is true from the fact that the bones of the babe are exceedingly yielding, being little more than cartilage. If the swathe is worn tight, so much so as to diminish the size of the abdomen, bringing the ends of the floating ribs nearer than while in their natural position, their yielding nature will soon admit of malformation—a permanent contraction of the size of the waist—and of course any such crowding together of the vital organs by this early bandaging of the chest and bowels, must, just to that extent, maim and cripple the body, interfering with the action of all the internal organs, more especially of the stomach, heart, and lungs, bringing the walls of the air cells in contact, resulting in adhesion, and in serious diseases of the lungs, if not in consumption, that scourge of civilization."

The loose, simple night-clothing should all be changed at the bath, and should remain "airing"

loosely throughout the day, instead of being "neatly folded and tucked under the pillow.

THE DAY-DRESS, in hot weather, at least during the hot part of the day, should, for people of all ages, be as light and simple as the law will allow. With infants, the nearer Cupid-ity the better. *In winter*, dress the baby in a sleeveless, soft-flannel shirt, a long, loose, and loose-sleeved flannel gown, and over this a loose "slip," plain, comfortable, and easily changed. The dress thus described is rather too warm than insufficient, if the living-rooms are kept at 70° F. This constitutes a pretty as well as a rational and appropriate dress for a young babe, and indicates the mother's good sense as well as love for her child. But, under ordinary circumstances, put them in "short clothes" as early as possible and give them a fair chance to develop the lower limbs—free from sweltering and hindering skirts; it is not a depraved, but rather a saving instinct that causes infants to "kick" against the prevailing mode. True mother-love seeks first of all the comfort and well-being of helpless infancy. Babies are often tortured by too many and too tight-fitting garments, through the ignorance or carelessness of their attendants, or simply to gratify the mother's silly pride, and are treated in all respects, in many cases, more like a doll in the hands of its make-believe mother, than like a sensitive little human being entitled to every possible comfort, in the free use of the developing body, limbs, muscles, and organs.

Warmth should be secured when more wraps are

necessary, by numerous light-weight garments, rather than few heavy ones, for the reason that bodily warmth can in that way be maintained with less cumbersome weight of clothing, the air spaces between the layers favoring the retention of the heat of the body.

The day-dress, including the shirt, should air throughout the night.

SQUARES.—There is a prevailing idea that the use of "fresh" squares is injurious—they must be dried and "used again!" The real danger *lies in using squares at all*: the sweltering of this portion of the body, including the loins (small of the back), is every way injurious, both to the genitals and the kidneys (see Bright's Disease *), and, through these, the entire organism. Blessed indeed are those children who are saved this unnatural fashion, especially as often practiced. "But Mrs. Grundy—a person's pinafore—and the carpet? Well, get a lot of short linen or cotton pantalets, rather loose about the hips, and tied around the waist or buttoned to the skirts of a short frock. Change them as often as you like. Wholesale they could be made for a dollar, and washed for a quarter a dozen." For the older children, outdoors, "add a pair of stockings with canvas soles, and perhaps little rubber boots on wet days, but no cap or shawl before October." † Where diapers are used at all, the oftener they are changed for fresh ones the better; they should never be used after being stained, till washed, thoroughly rinsed, and freed from soap. The best kind to use are the ones that are always dropping off!

* "The Natural Cure," etc., in press. † "Physical Education," p. 130.

NIGHT AIR.—DAMP AIR.

The superstitious fear of "night air" has done, and is doing, its share in breeding disease, as well as in preventing recovery of the sick. The Creator has seen fit to give us no other kind between sunset and sunrise, and the question is simply, shall we take it as pure as possible, by sufficient and perpetual ventilation, or shall we shut up a roomful, or a houseful, and breathe it over and over again, making it more "damp" and more impure with every breath? In the latter case all the members of the household are "starving for want of oxygen, and are poisoned by carbonic acid," and the tender infant is the chiefest sufferer.

BATHING.

The less clothing one wears, the less essential a daily bath becomes, and the less time necessary to devote to it. At the same time there is an increased ability to withstand exposure to wet or cold, whether of the bath, an involuntary ducking, or however caused.

There is often much cruelty practiced by the unconscious attendant in the matter of bathing children. If the bath is a terror to them, instead of a delight, it usually indicates lack of tact, or care, on the part of the mother or nurse; if the usual preparations excite alarm, it had best be infrequent. But strive to make it so agreeable to them as to be regarded as a treat. A bath that will prove ample for health and comfort, and often the best for us to adopt, is to wet

the body all over with the *warm* hand dipped in water at a *comfortable* temperature (not warm), and then dry quickly with towels, finishing, often, with an air-bath and brisk hand-rubbing. Soap is seldom necessary, and its habitual use is very objectionable. Accustom the infant, from the first, to transient exposures of the body, as in changing clothing, bath, etc., *within reason*, but within certain limits, without anxiety; it will tend to prevent "colds." In case of feeble infants the air-bath may be substituted on alternate days with advantage; the skin being gently rubbed with the bare hand while the infant is entirely nude, the room being warm and well ventilated. Few infants, however, but will be benefited by a *comfortable* bath daily. The more delicate the child, the warmer the water—not, however, above 85 to 90 degrees F.—and the quicker the process; while less caution need be exercised in case of robust children. In winter the latter may be dipped to the chin for a minute or less, while in summer they may enjoy paddling five to ten minutes, and without harm. In summer an extra sponging all over will often prove a great comfort toward eve, and help to a good night's sleep. Feeble infants may substitute the sponge-bath for the dip altogether, or for the most part. No bath should be taken within two hours after a meal, or half an hour before feeding.

A careless nurse or serving-woman, or any thoughtless person, may hold the baby too near the stove or register; baby's face is more tender than an adult's. Besides, the air close to or near the fire is, on account of

temperature and dryness, unfit for any one, especially an infant, to breathe.

The face of an infant should never be covered, but should remain *fully* exposed when in its crib; and the bedclothes not brought up in a manner likely to cover the face or any part of it, from movements on the part of the babe. Babies are often "tucked up" so nice that there is no escape from breathing the air emanating from their own bodies as it escapes about the face, even if it *is* possible to see the baby's nose by making a sharp effort.

Babies have been smothered to death beneath their wraps, on long rides, and, as a rule, they are allowed to suffer for want of the pure outdoor air even when taken out for an "airing," if the weather is at all cool. A well-ventilated room gives them better air than they can have out of doors if the face is covered by an ordinary veil. They should go out every day except in severe weather, but the face should not be covered.

VENTILATION.

"Oxygen is the mighty scavenger in the vital economy, the general purifier and clearer. Everywhere among the crevices and interstices of the vital plexus, it lies in wait, seizing upon all stray stuff—waste products of functions and unassimilable matters of all kinds, and converting these forthwith into harmless and eliminable compounds." And this true friend, always ready and "free as air," so vital at all times, and in a ten-fold degree to the sick, is, in most

cases, treated worse than a decent tramp, and the windows and doors sealed against it. Sick or well, we should always avoid standing, sitting, or lying in a direct current of air, either day or night, but owing to the stupid interpretation of this rule the "draught" and "night air" bugbears have sent thousands upon thousands to premature graves, and should themselves have been buried years ago with the companion hum bug, "no-water-in-fever."

The double window, as commonly used, is an elegant device—to shut out the breath of life. Except where the rooms are thoroughly ventilated by other means so that there is a perpetual communication between the in and out door air by means of ventilators, the single window should be "mismatched" rather than double windows added.

Individuals often feel chilly in a temperature at 80° Fahrenheit because their blood is impoverished for want of pure air in the home. They are literally starving because of an insufficient supply of oxygen; hence, they are chilly in a hot room when a constant change of air, sufficient to lower the temperature ten degrees, would in a little time restore their blood to a state of health, and give them, consequently, warmth and comfort.

The blood is the life. Warmth comes from within; hence, a corpse remains cold in an atmosphere at 100° Fahrenheit, while a healthy man remains warm in an atmosphere at 10°, and if continually exposed to so low a temperature he would simply consume more food, unless the difference should be made up

by added clothing. The more clothing the less food, or rather, the less clothing the more food, for one may easily don so many clothes as to smother the body in its own emanations; the skin must be allowed sufficient access to the air through the meshes of the clothing.

"Airing the rooms" by simply permitting a change for a few minutes, or an hour or two in the morning, does not answer the demand for pure air in sitting or sleeping-rooms. It is like having a pail of fresh water in the morning to drink from and to *wash in* for the balance of the day! Breathing does for the confined air what washing in the pail would do for the water; every hour lowers its quality and renders it less and less fit to purify the blood in the lungs. If the accuracy of this parallel were understood there would be better ventilation the world over. Not only does the air grow more damp at every breath if the room be closed, but "this watery vapor is not pure water, but holds in solution a considerable amount of carbonic acid and an albuminous substance in a state of decomposition, which, on exposing the fluid to an elevated temperature, occasions a very evident putrid odor."

This accounts for the stench so frequently observed by persons accustomed to pure air on entering a crowded hall that is not sufficiently ventilated.

When we reflect that the whole volume of the blood makes the circuit of the body once in every *half minute*, or thereabouts, passing through the lungs to exchange carbonic acid for oxygen, it is easy to see why "the

breathing of a vitiated atmosphere for only two or three hours out of the twenty-four is sufficient to produce scrofula,* consumption, and other alarming conditions, while causing a predisposition to croup, diphtheria, fevers, and the infantile diseases.

Filth diseases are often generated in the "neatest and nicest" of homes, where a fly-speck would not be tolerated, and where sweeping, dusting, and scrubbing make life a burden to the housewife or the servants, and to the male members of the household as well. Even a defective sink-drain is not necessary, although if it exists the peril is all the more deadly. An air-tight home, taken in connection with the prevailing dietetic habits, suffices to cause these diseases, some of which I have already named.

HOW TO VENTILATE.—The true theory of ventilation is to obtain a perpetual and sufficient change of air without sensible draught. The following simple plan, as I have proved by years of experience, perfectly fulfills these requirements, and leaves nothing to be desired. The *Scientific American* endorses the plan, and places it above many, in fact most of the elaborate and expensive devices. A three-inch strip placed beneath the lower sash of each window has the effect to "mismatch" the sashes, causing them to overlap each other in the middle. The stream of air thus admitted is thrown directly upward, and slowly mixes with the heated air in the upper part of the room. As several windows in each room are thus provided, the vitiated air is constantly passing out at

* Dr. Baudalogue, "Huxley and Youmans' Physiology."

one or another of the ventilators. The strip being perfectly fitted or listed, no air can enter at the sill, and all can be so nicely finished as in no manner to mar the appearance of the most elegant drawing-room. A dwelling thus ventilated will never smell "close" to the most sensitive nose upon re-entering, even after a prolonged stay in the open air—a test that would condemn, as unfit for occupancy, ninety in the hundred sitting and sleeping rooms, as well as churches, halls, etc., the world over. The purity of the air is by no means measured by the temperature. Cold air is often very impure by reason of stagnation (as stagnant water), or the exhalations from the lungs, etc., while, on the other hand, the temperature may be maintained at 70° F., or upwards, without lowering its quality, if a sufficient and perpetual change is going on between the outdoor and indoor air.

Croup: This most deadly disease could hardly be generated in a pure atmosphere. A child who was permitted to live in a really well-ventilated home, with pure air at night, by means of constant change, as well as during the day, could rarely have such an accumulation of impurity within its body as to cause the symptoms denominated croup. It is a well-known fact that the fattest children, usually, are the croupy ones, and it may be said that this disease is the result of an excess of food and a deficiency of oxygen.

Dr. Griscom says: "Food carried from the stomach to the blood can not become nutritive till it is properly oxygenated in the lungs, so that a small

quantity of food, if less wholesome, may be made nutritive by pure air as it passes through the lungs. But the best of food can not be changed into pure blood till it is vitalized by pure air in the lungs."

Another eminent physician has said: "As a medical man I have visited thousands of sick-rooms, and have not found in one in a hundred of them a pure atmosphere. I have often returned from church doubting whether I had not committed a sin in exposing myself so long to its poisonous air. In 1861 I visited a Legislative Hall, the Legislature being in session. I remained half an hour in the most impure air I ever breathed." Is it a wonder that we have bad laws?

"Our school-houses are, some of them, so vile in this respect that I would prefer to have my child remain in utter ignorance of books rather than to breathe, six hours every day, such a poisonous atmosphere. Twelve hours in a railway car exhausts one, often, not by the journeying, but because of the devitalized air."

Diphtheria: It has been remarked by observing physicians that the diphtheritic patient is often able to say that he "never felt better in his life than the day before he was taken." The parents often remark of a child suffering from this disease: "He was more lively than usual, and seemed at his best, only the very day before he was taken." Impure air at night, an excessive or badly-balanced diet, and, very likely, a constipated habit, had been doing their work for months, perhaps, though weeks only may, at times, suffice, until the system can bear no more. "A warfare by the

vital organs is roused. If the amount of poison is small a gentle excitement begins, perhaps exhilarating, the circulation being accelerated without being really unbalanced. So is it sometimes at the beginning of yellow fever, cholera, and other malignant diseases, when the vital forces begin to rally. There is, for a while, a sense of unwonted energy and a pleasurable excitement pervading the whole system, attended often with unusual buoyancy of spirits, and intense mental activity. But perhaps in an hour the patient is powerless, fatally prostrated, the intensity of the vital struggle ('reaction') having exhausted life. This disturbance is disease. It wastes one's capital of strength or sensibility in the ratio of its violence and continuance."*

CATCHING COLD.—As before intimated, a majority of these troubles arise from causes entirely remote from exposure to cold, whether the victims be the infants or their parents.

After a long term of steady cold, during which old and young continue in health and little complaint is heard about "colds," a sudden change occurs and there is perhaps a week of very mild, even warm, weather. Then it is that "colds" are the prevailing complaint. "I have an awful cold—and can't imagine how I caught it," says one. Another, "We've all got colds at our house." "The baby has a terrible 'cold,'"

* Although tobacco-poisoning is here referred to, the description is so completely applicable to the condition I am considering, that I feel that no apology is required for adopting the language.

and so it goes, throughout the town, and the county, and, if the warm spell extends so far, the State. "I add to my cold every day," is a common remark. They might safely say, "every meal!"

Why should people catch cold during the warm, pleasant weather so much more frequently than during the cold?

The reason appears to me very plain. The cold weather "braces us up," gives us a sharp appetite, and we indulge freely in food which, while the cold weather continues, can be tolerated by the system—even an excess, at least for a time. Now comes on suddenly the warm weather, rendering much less food, as well as fuel, necessary.

But our appetites do not decline as suddenly as the temperature, and for a while we eat, and feed the babies, fully up to the cold-weather standard! The result is inevitable.

Dr. Levi Reuben says:

"There is a set of causes, which, independently of temperature or exposure, produce genuine colds, marked by the symptoms, course, and results common to these ailments. The most important, *because most frequent*, of these, are *repletion*, and *exhaustion from fatigue*. *Repletion*, or plethora—a surcharge of the blood with solid or liquid matters through the digestive organs—is, in this gormandizing age, a far more frequent cause of colds than the majority of the sufferers at all suspect. . . .

"An overfull meal taken at any hour of the day (or, he might have added, eating at all when exhausted from mental or physical labor), by at once overtaxing and clogging all the operations of life, destroys the balance of the circulation, checks the action of the skin, gives rise to feverishness, and

may produce or reawaken a bronchitis, a catarrh, or any similar difficulty. This is a prolific source of those 'colds' taken in midsummer, and in the mildest weather, to account for which so perplexes their unfortunate subjects."

Among other causes for these troubles, the author quoted notes an excess of sugar, which by its carbon becomes a tax on the activity of the lungs and liver.

Whatever tends to weaken and exhaust the life-force predisposes the body to all the symptoms of what is commonly classed under the head of "colds." Hence the preventive or curative measures are such as tend to build up the system and improve the general health.

Carelessness as to wraps, avoidance of draughts, sudden changes, etc., is by no means counseled herein; indeed *comfort* should always be maintained when possible; and the delicate and frail, especially, must guard themselves at all points; but my aim has been to direct attention to matters of still more vital importance.

TREATMENT OF "COLDS."—When the disease appears, or is well advanced, the object should be to remove every obstruction—*everything that tends to tax the vital powers.*

Extra bathing—the bath made *comfortable* always—hot hand and foot baths, warm wraps, hot-water bottles if necessary to "cure" the chilly feeling. Frequent sponge baths so long as the skin manifests any degree of feverish heat. Entire rest in bed in severe cases, and natural warmth are most desirable. The consti-

pation so commonly attending this trouble should be met at the start by full, free injections of warm water to thoroughly empty and wash out the lower bowel.

There should be *entire abstinence from food* until the symptoms of convalescence are well established, when feeding may be resumed, but with extreme moderation at first.

Pure water—never *ice-water*—may be taken freely, as indicated by thirst, or in sufficient amount, little and often, to prevent thirst, but never so profusely as to cause discomfort later. This method of action would prevent many an "attack" of pneumonia; and at any stage of this dreaded disease it forms an important part of the treatment.

Vigorous exercise of the arms and shoulders, with persistent deep breathing, *in a pure atmosphere*, will often cut short threatened congestion of the lungs.

Candies, liquorice, syrups, etc., are commonly taken for coughs, hoarseness, tickling in the throat, and, even, for "cold on the lungs," and although temporary relief seems to be obtained in this way, these substances being highly carbonaceous "will secondarily impose an additional labor on the lungs, and aggravate instead of relieve the difficulty."

CONCERNING THE WHITE FLOUR so generally in use among rich and poor, it has been often enough pointed out as an impoverished article of food. Its white appearance is due to the removal of a great share of the gluten of the wheat in milling. Along with the

gluten there is also removed about three-fourths of the phosphoric acid contained in the wheat, five-sixths of the lime and soda, and all of the sulphur and sulphuric acid.

Farmers are aware that if from the fertilizers or plant food, with which they manure their crops, seventy-five per cent. of the mineral ingredients be withdrawn, there would be entailed vegetable growths of very feeble vitality, and poorly fitted to withstand disease-producing causes. Are children of less value than vegetables, that parents so carefully scrutinize and acquaint themselves with the merits or demerits of the food supplied to the latter, while their children spindle and pine for want of bread that shall be in fact, as in name, the "staff of life"?

Gluten is not only the chief flesh-forming substance found in the grain, but its presence in due proportion is needed along with the starch, since, as is believed, it aids in promoting the change from starch to sugar—always the preliminary step in the digestion of that substance. Whether this be true or not, it is certain that gluten is the most nutritious portion of the wheat, and is capable of sustaining life longer than any other single nutritive material. As was proved by Magendie, dogs fed upon white bread alone died in about forty days; while on the other hand, dogs fed on wheat-meal bread alone lived and thrived perfectly.

In children every tissue and organ is growing, increasing in size, and developing. How then can parents expect their children to grow up with robust

bodies and confirmed health, with strong nerves, teeth, eyes, hair, etc., on flour that would starve a dog to death in forty days? "Indeed, the present universal use of white flour is one of the most remarkable facts in the history of civilization—remarkable, because it is the only impoverished food upon the diet list."*

It is the common practice to feed children after weaning, on bread or crackers made from this wheat-starch—for it is little else—instead of bread made from wheat-meal. The trouble in finding a reliable and satisfactory article in the stores exists from the fact that there is so little call for it, that it hardly pays for the keeping.

Graham bread, so called, has fallen into disrepute, partly because of the poor quality of the article known as Graham flour, and partly because (even when the flour is of good quality) the cook does not learn how to make it into good bread. The term, "Graham flour," is a name often given to mixtures of bran and poor (and often spoilt) flour, to a large extent unfit for food. When pure, this flour is the product of the entire grain of the best wheat and can readily be made into a brown loaf, as light and handsome as need be; and in it, we secure all the important nutritive principles which the Creator for wise reasons has stored up in wheat.

All that has been said against white flour applies with tenfold force to the pastry formed from it; for

* Ephraim Cutter, M.D., Boston.

if in the form of bread, it is a robbed and depreciated article—it is still digestible, at least a certain quantity will be appropriated; while, in the form of sticky bottom crust or flaky top covering of pies, etc., it is deprived of its sole merit—digestibility. Not only that, but it becomes a mechanical obstruction—clogging the system, hindering the digestion and assimilation of the wholesome food eaten, and overtaxing the excretory organs in its elimination.

Children fed on this sort of food are, indeed, as they appear to be, hungry all the time. The stomach being in an irritated, “gnawing” state from an excess of starchy, saccharine substances, and the entire system suffering for want of the nourishment that can only be derived from a more nutritious diet, there is, of course, a demand for frequent lunches.

HEREDITY.

The following, clipped from an editorial in a daily paper, shows how thoroughly the law of heredity is understood and applied in the elevation of the lower animals:

“The American horse is a creature of intelligence and ambition. We regard this as among the most splendid results of the careful breeding in which Americans are now taking the lead. The firmness of muscle and strength of bone, the elasticity of thews, and the compactness of structure that characterize the American horse, are the results of careful selection of ancestry, and barring accidents, each new generation is expected to reproduce the desirable traits of that

which preceded it, with even a nearer approach to perfection. . . . The American horse of the highest class is more like a well-drilled, zealous soldier than like the brutes that occupied the track when breeding was in its infancy."

We quote the following from the "Mother's Hygienic Handbook," by the late Dr. R. T. Trall:

"Motherhood should be normal. But it never will be and never can be under the prevailing fashions of society. A man might as well drink intoxicating liquor and then endeavor

" 'To walk erect with face upturned to Heaven,'

without gibbering or staggering, as a woman expect to eat, drink, dress, and dissipate in the fashionable ways, and be the mother of healthy offspring. . . .

"In a recent lecture delivered in San Francisco, California, on the subject of 'Marriage and Maternity,' Mrs. Stanton said:

" 'The idea that woman is weak, inherently, is a grand mistake. She is physically weak because she neglects her baths—because she violates every law of her nature and her God—because she dresses in a way that would kill a man. I feel it to be my mission to arouse every woman to bring up her daughter without breaking her up in doing so. Our female idea of dress is all wrong. My girlhood was spent mostly in the open air. I early imbibed the idea that a girl was as good as a boy, and I carried it out. I would walk five miles before breakfast, or ride ten on horseback. After I was married I wore my clothing sensibly.

The weight hung alone on my shoulders. I never compressed my body out of its natural shape. My first four children were born and I suffered little. I then made up my mind that it was totally unnecessary for me to suffer at all, so I dressed lightly, walked every day, lived as much as possible in the open air, ate no condiments or spices, kept quiet, listened to music, looked at pictures, read poetry. The night before the birth of the child I walked three miles. The child was born *without a particle of pain*. I bathed it and dressed it, and it weighed ten and a half pounds. The same day I dined with the family. Everybody said I would surely die, but I never had a relapse or a moment's inconvenience from it.' . . .

"Every child that is born is entitled to the inheritance of a sound bodily organization. This implies health on the part of both parents, but more especially on the part of the maternal parent, because she is much more immediately associated with the vital conditions of the offspring than the father is.

"The child is but the unfolding of the mingled germs. The fertilized ovum contains all the elements of the future being. These elements are unfolded, not created, in the processes we term development and growth. How else can we account for the resemblance of children to parents? This is the law of all vital organisms, otherwise there could be no transmission of organization, no continuous and distinct species of plants or animals. The stalwart oak is but the unfolding of the acorn. The plant has nothing that did not exist in the seed. Our farmers understand the importance

of perfect seed in producing the best crops. And they are not ignorant of the fact that comely and profitable animals can not be raised unless both parents are healthy when they are begotten. But how little these considerations are thought of, and how much less they are regarded, in relation to human beings!

"All persons who expect to have children desire them to be beautiful and good. But the vast majority who do have children are wholly reckless of all conditions that ensure that result. They give being to immortal souls in diseased conditions of body and morbid states of mind, and then wonder that a 'mysterious Providence' afflicts them with frail or depraved offspring. It would be a very mysterious Providence that would reverse the order of nature, stultify His own laws, and produce *good* consequences from *bad* causes. . . .

"It is a very prevalent error that persons may impair the functions of individual life without materially affecting the integrity of the reproductive organs. Many parents will eat and drink pernicious things, use liquor and tobacco, indulge the most violent passions, etc., with little or no thought that such practices and habits deprave and enfeeble their sexual powers. Here, as everywhere, self-preservation is the first law. The individual must be first sustained. And however much unhygienic habits deteriorate the functions of individual life, the functions of social life will suffer still more. This is why so many persons of vigorous constitutions are the parents of feeble and sickly children. Many a mother breathes enough for herself but not enough for the offspring during gestation; and

this comes into the world frail and scrofulous, like a plant that has grown in a situation deprived of light."

MARITAL EXCESSES often produce in the offspring sexual precocity and ungovernable passions, which in turn are nourished by unwholesome and stimulating articles of food and drink, entailing a vast deal of shame and sorrow throughout the lives of those who are "more sinned against than sinning." Verily the sins of the parents shall be visited upon the children even to the third and fourth generation of them that hate Him and violate His law.

BABY TALK.—Who has not seen *big boys* snubbed or laughed at for things that a few years before seemed "cunning"—illustrating the unwisdom of the common habit of imitating *them*, instead of giving them a chance to imitate us?

How cruel would seem the thought of punishing a little child for its first imperfect utterances—the "baby talk" so delightful to the fond ears of parents. And yet this is often done unintentionally by parents and friends. I am thinking of the habit so common of continually imitating the crude efforts of the little ones to master the language—making "baby talk" the rule in our own utterances to them and before them. The effect is to retard their progress—giving them too little opportunity and too little incentive for copying the language of adults—and a little later the child is pained and the parents' ears tingle at hearing a chance remark: "How terribly backward she is about talking."

I love dearly to hear the little fellows prattling

their baby talk; but they will cling to it quite as long as it will seem "cunning," without *cultivating* it. There is no way to prevent it; nor is it desirable. But let them grow—do not make an *effort* that shall tend to dwarf them in body, mind, or speech. It is truly said that a child has years in which to "grow"—to develop body and mind—and that they should not be forced. I would not, by any means, advocate a hot-house pushing for mind or speech, any more than for the body; but, on the other hand, I deprecate a system that tends to check a really normal growth in any direction.

Were we to encircle our boy with a sort of compress—body, arms, legs, etc.—just a trifle snug all over, it would tend to prevent a normal physical growth. Something like this effect is produced on the baby's speech by cultivating his propensity for using sounds instead of words to convey his ideas. So far from being in favor of perpetually "drilling" a child, I am herein endeavoring to discourage the practice. But of the two extremes, I would sooner drill my child in correct than in incorrect expressions.

The best way, as it seems to me, is to enjoy the little ones all the way along—cooing, baby talk, and all—as long as each may last; but let them *hear*, chiefly, good language. Permit them to observe good language as well as pure thoughts, sweet looks, and gentle actions. In this way only can there be an approach to symmetrical growth in all good ways, such as all parents hope for, but, alas, the absence of which they so often have occasion to mourn when too late.

This does not savor of Puritanism in the sense of over-strictness. It is not strictness; but, simply, not looseness. It is giving little human beings in our homes as fair a chance as we would give a lily or a rose in our garden—the chance to become as beautiful and as full of fragrance as any of its kind.

“Never mistake infants for toys or playthings. Never employ them to amuse yourself or entertain company. Never exhibit them for the purpose of reflecting the inherited charms and qualities of which the parents are proud—perhaps justly. In their own good time and manner, if they are well nourished and well rested, they will manifest all the virtues they possess without prompting.”

“PLAGUING” CHILDREN.—The man who would not permit himself, nor any one else, to “plague” his colt or young horse lest it make him vicious, will devote considerable time to harassing his infant or three-year-old child to his own and the lookers-on infinite amusement, and the destruction of his child's good temper. I have seen a group of parents, aunts, uncles, and cousins, amusing themselves at the anger and vexation displayed by a little, eighteen-months-old girl, whose puzzle had been tampered with so that she could not pull it apart as she had been accustomed to do. The trap was set again and again by the elders, any one of whom would have been incensed at the suggestion that the action was even of questionable advantage in its influence upon the baby's character and temper.

ITCHING.—*Whipping the baby's hands* would less frequently seem necessary if sufficient attention were always paid to cleanliness about the groin and genitals. The diaper serves to retain the excretions in contact with the skin, and to increase the surface thus exposed, and to that extent is anything but hygienic. The only remedy is to sponge with pure water upon each occasion for changing the diaper; otherwise the parts will *itch*. Scratching and fingering soon becomes a fixed habit, which not seldom leads to another, whose consequences are often observed in the blasted lives of its victims—with no health, stamina, courage, position, or happiness—and in numberless instances affect injuriously the health, character, and success of those who are said not to “turn out” well, or who fall short of the mark.

RED CHEEKS.—This symptom, popularly regarded as a sign of health, is simply evidence of plethōra when it is habitually observed in robust individuals, young or old, and denotes a predisposition to febrile diseases. *Congestion of the cheeks* is, of course, not dangerous, in itself considered, but it is no more a sign of health than is congestion of the bowels, lungs, or kidneys. It is a note of warning, and should be promptly heeded. The plethoric, or full-blooded, robust subject should be more abstemious in diet—taking less food as a whole, perhaps, or adopting a less stimulating, and non-irritating diet. The frail delicate, or anæmic patient's flushed cheeks are not apt to be misinterpreted.

IMPORTANCE OF SINGLE BEDS.—*No* two persons, whatever their relationship, should habitually occupy the same bed. There are very many instances where this habit goes a great way toward hastening the decline and premature death of the *weaker individual*.

The baby should by all means have his own single cot, if possible. When poverty or other circumstance renders it imperative for warmth in extremely cold weather for the infant to sleep with the parents, it is admissible as a choice of two evils.

WHOOPIING COUGH.—It is usually observed that this cough grows worse toward evening, and is worst at night. By morning there has been something of a rest of the stomach, and the cough is easier—perhaps disappears entirely. A full meal is often the exciting cause of a fresh and violent paroxysm. *Other things equal*, the child who is oftenest and most excessively fed will suffer most and have the longest “run.”

WORMS will never trouble a well-fed child. Indigestible food or overeating is usually the cause of these “natural scavengers.” “Bread, of unbolted grain, ripe fruits, and vegetables, simply boiled or baked, infrequent meals, and temperance, constitute a plan of medication that is *death on worms*, and better than all the nostrums and vermifuges in existence.”

ROCKING THE BABY.—All that would be required for the abolition of the cradle from any home would be to rock the mother or nurse in the cradle as hard proportionally, and as long, as they should rock the

baby. The practice is a pernicious one, and utterly inexcusable, and merits a punishment as severe as the one we have named.

KEEP CLEAN.—The inside of the body, as well as of the platter, is more important to be kept clean than the outside. Impure food, stimulating food, hot, stimulating drinks and condiments, indigestible substances; an excess of certain proximate principles of food, as sugar, butter, cream, cheese, as well as an *excess* of the best selected foods, tend to destroy the balance of the organism, impair and ruin the digestion, or overload the circulation, debase the mental and moral faculties, because injuring their organ, the brain; and to wear out the body and use up one's inherited stock of vitality—to shorten life and impair its usefulness.

NOTE.—Since this book has been in progress I have weaned a kitten at six weeks of age, and have fed her twice a day only—at 8 A.M. and 8 P.M., when our own two only meals were being prepared. Her diet has been wheat bread and milk only. She is now about two-thirds grown, and has outstripped the others of the same litter, who have been fed oftener, in thrift and growth, and in muscular activity she excels them all. Certainly no one could well imagine a livelier or a happier kitten than "Topsy." In *flesh* her condition has remained about the same as when feeding was commenced. She never manifests any desire for food except when our own meals are in preparation; but then, well knowing that her time has come, she gives unmistakable evidence of appetite. She utterly refuses to eat white flour bread, however, at any hour of the day!

APPENDIX

TO THIRD EDITION.

ANOTHER year has rolled away—gone ; and with it have gone the usual proportion of children born within the year. The death-roll of Boston, for example (and the weeks are monotonously alike), for the current week—ending Aug. 5, 1882—shows 108 deaths of infants under one year, in a total of 262—three more than two-fifths. Disease of the digestive organs did the fatal business for seven-eighths of the number : cholera infantum, 65 ; diarrhœa, 9 ; dysentery, 6 ; inflammation of the bowels, 8 ; marasmus, 8. The four disorders last named, figured largely in the adult mortality also, but have no connection with the figures given. Excepting the last item—marasmus—not one of these disorders would have been possible if those infants had been given pure food, though this were offered in only such amount as would have insured wasting to death ; that is, a *starvation diet*, or any quantity of food between this and the quantity best suited to insure the greatest thrift, could never, at any season of the year, excite any disorder on the list. The right amount would insure against all these disorders ; while a starvation diet, pure and simple, would produce a

painless wasting, far preferable to the condition indicated by the term *marasmus*, which, in practice, is preceded and accompanied by a great deal of suffering. As usual, editorial comments begin and end with reflections on the weather: "the great mortality is due to heat." If so, it is none the less, and nothing more or less, than Nature's protest against a winter diet in summer (*i.e.*, all they want or can be induced to swallow); while the *winter* mortality is several times as excessive as it would be but for hot rooms (simulating a tropical climate without its fresh air) and an amount of food ample for the infant inhabitant of an ice-hut in Greenland.

Says Dr. Oswald: "The representative nurse believes in cramming; babies, like prize-pigs, are most admired when they are ready to die with fatty degeneration. The child is coaxed to suckle almost every half-hour, day after day, till habit begets a morbid appetite, analogous to the dyspeptic's stomach distress which no food can relieve till overrepletion brings on a sort of gastric lethargy." *

It has elsewhere in this work been pointed out that the highest attention has long been paid to the *breeding* of handsome and healthy animals, and but little to the breeding of beautiful and healthy children. It is likewise true that the question of the *feeding* of cattle of all ages receives a great deal of attention; improvements are suggested by experts, quite readily adopted by the "laity," and so progress is made

* "Physical Education," p. 202.

from year to year. With the alimentation of human beings how different ! In the case of infants, indeed, the prevailing custom of feeding, among the most ignorant, is almost, if not quite, identical with the practices in vogue among the most elevated of our people. Among the lower animals the hog is the only really *gross* specimen to be found—the only one that corresponds in proportions to the babe who quite satisfies its parents, and is praised on every hand—and this creature is exceptionally fed for exceptional purposes, viz, to furnish the frying-pan with the elements that tend to increase the disease of a dyspeptic race. But even here the reformer is at work. Referring to the need of *meaty* instead of *fat* animals, a writer in the *American Agriculturist* says: "Out-of-door pigs would not show so well at the fairs, and would probably be passed over by judges and people who have been taught to admire only the fat and helpless things which get the prizes. Such pigs are well adapted to fill lard-kegs, whereas the standard of perfection should be a pig which will make the most ham with the least waste of fat, the longest and deepest sides with the most lean meat ; it should have bone* enough to allow it to stand up and help itself to food, and carry with it the *evidence of health and development in all its parts.*" Suppose this last sentiment—the natural outcome of the principle laid

* A neighbor recently remarked upon the tenderness of their pig-pork, their own raising : " Why, even the *bones* are so tender, they are almost as soft as the flesh itself." This is the condition of fat, "rickety" children, also.

down by this writer, and which has been presented throughout this treatise—suppose this should be the guiding thought in the matter of rearing infants, and the same interest manifested by parents to learn how to feed their children all the way along! “Infantile diseases” would figure very lightly in the death-roll, as compared with the present experiences.

It was in the hope of promoting this much-needed change that this book was published last year; and while the reform so desirable has not swept over the nation to its complete conversion, still the highest expectations of both author and publishers have been fully met in its reception and approval by the general public, as well as by the medical fraternity.

[From the *Boston Journal of Chemistry*, Aug., 1882].

FEEDING THE BABY.

The following is for the new issue of Dr. C. E. Page's “How to Feed the Baby,” which, though first published a little more than a year ago, has already reached a third edition, owing its success largely to its having been approved by many of our best physicians, though the system it advocates is in direct opposition to all the established customs and traditions of nurses. Regarding the pernicious custom of constant feeding, Dr. Page says:

“The mother who essays even so mild a reform as the restriction of her new-born babe to a ‘square meal’ every three hours is likely to change nurses several times before finding one who will permit such ‘cruel nonsense.’”

"Those who advocate non-restriction in the nursing or bottling of infants are fond of asserting that colts, kittens, puppies, etc., under natural conditions, 'nurse all the time,' and they ask, Why shouldn't babies have the same liberty?

"People who argue thus do not consider the fact that babies are not often as 'naturally' supplied as young animals of the lower order. In some respects our civilization works adversely to the interests of the 'race of infants': few of our modern women are, strictly speaking, 'natural mothers'; too often the aliment supplied by them is affected injuriously by the unnatural conditions incident to their mode of life. The milk may be excessive in amount and deficient in quality—an evil which frequent nursing tends to increase. Often it is deficient both in quantity and quality, and is thought to be in some instances, when, in fact, it is not; and in other instances it is found impossible to, and some mothers *will not*, nurse their babies: hence the great number of cases where resort is had to cow's milk, which, though doubtless the best substitute when properly prepared, is still a strictly natural aliment for the calf only, being much 'stronger' than breast milk, and requiring a longer time for digestion.

"Again, the little animals referred to—puppies, for example—really spend comparatively little time in eating, although it is quite true that they make a great to-do about it, and do devote quite a share of their waking moments to *efforts* in this direction: (a) A great portion of the time when they appear to be

quietly regaling the 'inner dog' with their 'favorite prescription,' a close inspection discloses the fact that, with their noses simply buried from sight, they are sleeping, and not eating. (*b*). Another goodly portion of time is spent in a blind hunt for the nipple, in rolling about, in 'ground and lofty tumbling,' pushing, pulling, crowding, and badgering one another, each in the notion that the other has found it and is getting ahead of him, and in the effort to steal his brother's dinner. (*c*). They spend a good deal of time in vigorous efforts after the supply is exhausted; they shift from one nipple to another, and 'when they get there, the cupboard is bare.' Thus they manage to take a great deal of exercise, while getting comparatively little milk. Finally, while the supply is usually equal to their needs, it seems never to be in excess—*diet* and *exercise* being so well related to each other that the entire organism is normally developed.

"How different with babies! These, supplied from a full breast or bottle, fill themselves quickly and without effort—surely a contrast worth considering, more especially since the contrast in their physical condition is equally marked: lean and healthy in the one case; fat and ailing in the other. It is true that when the natural diet is supplemented with cow's milk, or when they are weaned and are fed to excess, puppies are made ill—have fits, that are attributed to their having 'swallowed a tooth' (of the size of a pin-head), instead of to the gross diet supplied; but as a rule they are rarely sick, and never have the disease so common, almost universal, in infancy, and

so much dreaded in adult life—fatty degeneration. Appearances are often deceptive: a novice who will take the trouble, however, to examine the fattest-looking kitten or puppy, will be surprised to find him made up of a very bony frame, muscles, tendons, and over all a *loose* skin, in no degree stuffed out with fat. As a rule—I have never observed an exception—the nurslings of animals are *never* fat, never even border upon that state; while human parents are never quite satisfied unless their babies' cellular tissues are storing up fat globules at the rate of a pound a week, an invariable precursor of—disease, shall I say? It *is* disease, and almost inevitably culminates in a sickness that robs them of the fat, if not of life. From a careful consideration of these points, it would seem that what nature alone accomplishes in the case of the young of the lower animals—normal growth and exemption from disease during the nursing period—demands, on the part of parents and attendants, the exercise of rare judgment, as well as care, in the alimentation of their little charges, in order to secure anything like the same happy results."

A very common remark with parents, in calling attention to the fat-swollen limbs of the little ones, is, "See how *hard* his flesh is!" Of course, it is not *flesh* at all—the flesh is buried far beneath it—but fat, and not *his own* at that, but that of the creature from which the milk is drawn, or, if the subject of the remark is of older growth, whether child or adult, the fat with which his cellular tissue is stuffed is that of the animals from which the meat, the butter, and

the cream were derived, and has been transferred unchanged. It is true that no creature living is altogether devoid of fatty matters; the healthiest body has, within the hollow bones, and about various localities, what may be called a normal amount of fat; and the mother's milk, in the case of an infant, or a well-balanced vegetable diet, in that of an adult, furnishes this in abundance; and if alimentation is carried to excess, there will be an excess of fat deposited, though the fat of animals constitutes no part of the diet. It has been taught by physiologists "that the fat of the body is not derived directly from the fat of the food. But from statistical analysis Hoffmann, according to the *Lancet*, has arrived at the conclusion that the formed fat of the animal body arises not only from heterogeneous elements of the food, but also in part, at least, from ingested fat. Radzcejewsky concludes that the special destination of this fat is the intramuscular adipose tissue. A series of investigations, undertaken by Lebedeff in the clinical department of the Pathological Laboratory at Berlin, leads him also to the conclusion that the ingested fat is deposited unchanged in the fatty tissue of the body. Two dogs were kept fasting for a month, losing in the time about 40 per cent. of their weight. Previous experiments have shown that under these circumstances all the fat of the body disappears. The dogs were then fed on a diet which consisted of large quantities of fat foreign to their own nature, and a small quantity of flesh. Both dogs regained their normal weight in three weeks, and

were then killed. One had been fed on linseed oil, and from its tissue was obtained more than a kilogram of fatty oil, which did not become solid at the freezing-point of water, and which corresponded closely in chemical character to linseed oil. The second dog was fed on mutton suet, which had a boiling point about 50° C., and in its body, in the muscles, about the internal organs, and beneath the skin, a form of fat was found which was almost identical with suet. . . . Thus it would appear that ingested fat, even such as is foreign to the individual constitution, may yet become transformed directly into the fatty tissue * of the animal. Other experiments of the same investigator seem to show that this is true also of milk fat."

This explains, at least in part, why consumptives become fat on milk, or cod-liver oil and whisky, for example, and are said, often, to be "improving," and yet a few months later, die of their disease. They are, in fact, hurried to the grave by a diet really very much more unwholesome than that which originated, or aided largely in producing, their disease. This artificial fat is as abnormal, as much a foreign element, as though the oil had been injected under the skin and the tissues stuffed out mechanically; while the alcohol exerts an influence to prevent the normal excretion of waste matters.

* The proper name is *cellular* tissue. It can not be called "fatty" until these abnormal elements have been deposited therein. Its primary office is not the retention of such matters, though it does, upon occasion, serve to "relieve the body, to some extent, of the immediate effects of excessive alimentation, by affording a reservoir for surplus animal fat."

CONCERNING THE SWATHING OF NEW-BORN INFANTS.

It is, of course, not necessary to remind physicians, but it is not popularly known, that while the general circulation of the unborn babe is, in many respects, like that of the breathing creature, the blood, propelled by the maternal heart and entering at the navel, passes through the two auricles of the fœtal heart, which communicate by means of the *foramen ovale*, instead of passing through the auricles and ventricles in the regular order; and that up to the moment of birth and until inflated by the act of inspiration the lungs are dense and solid in structure. When, then, the babe is born, and comes under the necessity of having his blood propelled to and from his lungs by the action of his own heart, certain transformations take place.

I now come to the point of connecting the changes, or certain of them, that take place at birth: (1) the lungs change from their "dense and solid structure," the air-cells are opened for life; (2) the opening between the two auricles of the heart is forever closed; (3) "the pulsation of the cord, which is usually strong and distinct, ceases in ten, fifteen, or twenty minutes after birth, and the portion attached to the child shrinks and falls off in five or six days." The point I have in view is this, viz.: the treatment or dressing necessary for the navel at birth. We observe that it is physically impossible to even attempt to aid nature either in opening the lungs or closing the *foramen*

ovale. Is it not possible that "doctoring" the remnant of the cord, as commonly practiced, is foolish—foolish in the sense of being needless, and especially because unnatural and injurious to thus bandage the body? "What! would you leave that portion of the cord to grow hard and hang unprotected, with the danger of rupture always imminent?" Let us see. How much less does this reasoning apply to a carefully-tended (I might well say overtended) babe than to the puppy or kitten, who begins immediately his blind fight for life—pulling, hauling, rolling, tumbling, straining every muscle, from the moment he comes into the world? And yet no one is stupid enough to even tie a string about the remnant of cord left by the mother, who devours the "after-birth" and the cord to within an inch or two of the body of her new-born. No sweltering flannel bandage is applied about the little loins—no nuisance of any sort is committed upon this little child of nature. I am not alone in asserting that it is an act of barbarism to thus bandage a new-born babe. Hundreds of men have given this subject thought enough to be able to declare this, and emphatically. How, then, does it come about that this practice prevails world-wide? How was it first introduced? I can account for its introduction in no other way than this: observing the fact that stomach-distention, from excessive feeding, sometimes resulted in what is termed umbilical rupture (or the fact of rupture alone without connecting it with the question of diet), it was by some wiseacre deemed necessary as a protection.

Now, I can conceive that in case of an imperfectly developed infant, one whose tissues are unsound at birth, because of the unhygienic habits of the mother, (a greedy infant and a foolish mother—knowing no restriction,) that it should *seem* expedient to apply a bandage sufficiently snug to prevent such distention of the stomach as would tend to burst away the tissues at this comparatively exposed point. It is possible that there are some thinking physicians (thoughtless ones, who compose the vast majority, following all customs blindly), even now, who, in view of the inevitable cramming to which infants are subjected, consider that in general the bandage is the least of two evils. Some of the most intelligent ones, however, believe that sweltering the parts in this manner increases the danger of rupture by preventing the normal nourishment and strengthening of the tissues involved, besides affecting injuriously the kidneys, and, in fact, the entire organism. I, myself, believe this to be the case. In any event, however, when the question concerns a healthy-born babe, and a properly-fed one, from no point of view, except that of gross ignorance—inexcusable ignorance, if upon the part of a practicing physician—can any such appliance be deemed other than intolerable. In the case of a million such infants, thus fed, there could never be a single case of rupture—never one; nor would any other ailment ensue, as a result of neglecting to bind a swathe about the body. From only one point of view can an intelligent person, physician or layman, even hesitate in condemning

the practice *in toto*, viz. : to prevent excess in diet to the point of abnormally distending the stomach ; and even here the sober second thought must decide against the practice, for the untrammelled body, unrestricted in its circulatory system and in the proper ventilation of the skin, can better withstand any degree of excess in diet without, than the relatively greater system with, the swathe. If the simple presentation of this matter is not sufficient to induce physicians to discountenance the practice and to urge parents to abandon it, no amount of argument, as it seems to me, would avail. How easy and how complete, to tie a soft rag around the remnant of the cord, dress the babe with the diaper (exercising mercy as to the number and tightness of these appliances), loose shirt, soft flannel gown, and easy slip ; and, how comforting such treatment to the little creatures who are so utterly dependent upon our intelligence and care. What delight would be experienced in the household, with the advent of a baby who should be dressed in this fashion, have the freshest and purest air attainable, day and night, and have from a really healthy mother's breast, or from a healthy cow, food enough, and little enough to prevent disease—whether the meals were three or six, or a few mouthfuls allowed at an indefinite number of luncheons at indefinite hours ; for it is not three meals, simply, that is the question, but the avoidance of surfeit and of all the wretched evidences of it, as obesity,* bowel and

* Whatever a healthy infant gains in weight above, say, three to five ounces a week, as the weeks go along from birth to the age of one year, is

stomach troubles, and the scores of minor ails which lead on to the so-called infantile diseases.

not bone and muscle, but fat. I have raised a pair of terrier puppies whose weight at birth was, the female 10½ and the male 11 ounces, whose gain in weight was about 10 ounces per week, week after week, until full grown; but with them full size was reached in about 16 weeks, while a human infant, whatever the system of diet adopted, requires more than as many years to attain maturity. These puppies, whose manner of feeding and of *earning* their food as they gathered it was as different from that of babies as their rate of growth, never, at any stage of growth, had a particle of adipose matter observable over or about them, but were throughout, like their mother, "lean," healthy, and happy.

I have cited the animal kingdom in proof of the fact that *normal growth* is utterly removed from any resemblance to the conditions usually observed in the case of the human infant; that it is always a lean, lank or spindling (not pindling) condition. I desire now to call attention to the further fact, equally significant and corroborative of my position, that the same law obtains throughout the vegetable kingdom: the saplings of all trees, the slips of plants as they grow along, rose bushes, berry bushes, etc., etc., all spindle along up in their growth; and even the cabbage, which at adult age inclines to *embonpoint*, is very slim in build through infancy and youth. It is not necessary to particularize further on this point; enough has been said to lead sound-thinking persons to sound conclusions.

SPECIAL NOTE.

OCTOBER 6, 1882.—I have delayed sending this new edition to press in order that I might give a little account of another new edition, and institute something like a comparison between Alice's experience during the first few weeks of her life and that of her brother, born on the 9th of the past month, and who, so far as it is possible to judge, was a perfectly healthy-born infant, and quite as vigorous at birth as his sister. His weight, as might be expected—males averaging about that much more than females—was one-half pound greater than Alice's. For the purpose of comparison this one has been nursed, thus far, at intervals of four hours, making five meals between 5 or 6 A.M., and 9 P.M., the treatment in all other particulars being identical with that of his predecessor.

It is observed that while he is "easily tended," as compared with infants in general,—that is, he has been made comparatively comfortable by the same light, loose garments; absence of that unmitigated nuisance, called belly-band,—devised by ignorance and adjusted by superstition; the same quality of air and the same fearlessness as to air in motion (I dare

not use the term "draught"),—still there has been a greater tendency to "fuss" (indicative of an uneasy stomach) than in Alice's case, just as at all periods of life it is found that the oftener people eat the oftener they want to, *i.e.*, the less easy it is for them to wait for the regular meal-hour. He takes less, at each of his meals, or, at least nurses a shorter length of time, than Alice did at each of her three; but contrary to her experience, there has been some degree of indigestion, indicated by the presence of curd in the excreta.

This is the rule with infants, although not usually observed by the nurse, or if observed, its significance is not appreciated. There are various symptoms of disease, which are so universal that ignorance denominates them "natural." If attention is sought to be directed toward certain abnormal features, as, for example, the one just mentioned, or, in case of the mother, to the prevalent excess, or overflow, of milk, caked breasts, or any indications of "milk fever," the wiseacre nurse is ready with her "Oh, that is natural for babies," "they [mothers] are always that way at such times"; and that settles the matter. But the most significant feature in this comparison is this: although so far as sex and size are supposed to influence the question, the advantage is on the side of this new-born, yet he is less muscular than his sister was, having still, at the age of four weeks, the traditional and unmistakable limp neck of infancy which in her case disappeared before the fourth day. Feeling that all the evidence is in favor of the "Alice

system," we design, shortly, to give her brother the benefit of it.

In closing, I would say that for nurslings, if upon a fair trial it should be evident, in any instance, that the babe was insufficiently nourished, as, for example, if there should be no gain in weight at the end of a week, a fourth nursing would be in order. The fact of an infant's fussing and "hunting" is not always evidence of a need of food; it is oftener indicative of thirst occasioned by irritation at the stomach, and while food will pacify him for the time being,—even put him to sleep, perhaps,—this is only because the food itself is nine-tenths water, and, later on, the one-tenth which in this case, we will suppose, was not needed, will increase the stomach-disorder and baby will be more fussy than before; whereas two or three teaspoonfuls of warm water would have done lasting good. If, however, the scales show a gain of one-fourth of a pound or over the first week, and that ratio is maintained all the way along, all the demands between the three regular meals may safely be met with warm, or after a while, cool water. The foregoing is equally applicable to hand-fed infants, except so far as relates to the fourth meal: after the question of the quality of his food—a matter of no small importance—the only danger is that three meals of cow's milk are more than he can digest, and I repeat most emphatically my former injunction that whenever there are indications of indigestion, the amount offered at each meal should be reduced, or the mid-meal omitted temporarily if not permanently. A

steady gain at the above-mentioned rate would give 33 lbs. as the weight of a 7-pound babe, at two years of age. Very few 2-year-olds come up to this figure, retaining, at the same time, the form and shape of a healthy human being. The gain in weight may, in some instances (as in the case of parents who are exceptionally tall and very vigorous), be considerably more than one-fourth of a pound a week, at first, and still be a normal growth—lengthening out of the body and limbs: the point is to avoid digestive disturbances, as vomiting, diarrhœa, constipation, and colic; and, above all, to practice sufficient restriction to prevent the universal fat-bloat.

It is very essential for the nursing mother to *begin* with three meals; not nurse oftener at first, thinking to reduce the number after a while: the first few weeks govern the *size* and *capacity* of the breasts. It is easy enough to increase the number of meals, but after nursing a few weeks on, say, the three-hour system, there might not be enough milk secreted at one time for a full meal on the three-meal system. In such a case the change would necessitate the use of a little cow's milk at each meal until the supply should equal the demand.

Mrs. S. D. Nutting, formerly of Newburyport, Mass., now living at Auburn, Me., has four children now living,—the eldest 32, and the youngest 20 years old,—both of whom she nursed but three times a day. Her first two infants were nursed frequently and died of cholera infantum. The third, a son, now 32, she nursed as above stated, and, as she says, "he never

was sick a day. He was never a fat baby," she continued, "and the neighbors complained a good deal, and my connections still more, at my 'neglect' of him, but he grew steadily, became very tall, as a lad, and is now a man of splendid *physique*. My experience with his youngest sister was the same; but the two born between these were pindling, fussy, and wanted it oftener, and I fed them oftener." In response to my inquiry as to whether they might not, in her opinion, have been better if she had followed the other plan rigidly? she said, "I thought so, when the next one came, and so nursed her only three times, and I feel sure that it is by far the best way."

Of all the infants I have known fed in this manner, only one has died; and that one died of a surfeit-disease, dysentery, a disorder which never yet attacked any living creature, of whatever age, sex, or species, except as the result of *excess*—of something—either of food to the point of insuring indigestion, or of some indigestible substance. A deficient, or even a starvation diet (of pure food) would never cause diarrhœa. It would close the bowels, but would *never* induce the sort of constipation called dysentery, which usually succeeds diarrhœa, and in which there exists a violent inflammation of the intestine.

NOTICE OF THE AUTHOR.

[From *Phrenological Journal* of April, 1881.]

"HOW TO FEED THE BABY."

THIS is the title of a new book on the management of infants, which has already excited inquiry and discussion, and will prove, we think, a valuable addition to the stock of practical hygienic treatises adapted to popular use. A book of any character naturally suggests more or less speculation with regard to its author, and of him a brief sketch must now suffice.

Dr. Page has for ten years past paid great attention to the study of dietetics, or to be more exact, he has studied carefully the relation of alimentation to health and disease, as well as the influence of mental and moral culture upon the physical well-being of the body. For the past five years he has made infant dietetics almost a specialty. Unlike physicians, in general, who from necessity take much of their information at second-hand from parents and nurses without personal verification, he has set himself the task of probing to the bottom this question of infant mortality, by personal experience and observation, to the neglect, largely, of general practice; from the feeling that in this much-neglected department of research he could be of most service to his fellow-men

It has long been a source of wonder to him why farmers and others should regard the question of food and feeding of such vital importance in its relation to the health and growth of the young cattle they raise, and pay such strict attention to their diet, and yet give the subject of the alimentation of their own offspring scarcely a direct thought. Strangely enough it has come to be regarded as beneath the dignity of a man to enter the nursery for any higher purpose than to "toss" his obese offspring, or chuck him under the chin, or stick out his eyes and whistle for his amusement ! He must not manifest even the curiosity to ascertain whether his six-months-old girl is not swallowing about as much of the same cow's milk every twenty-four hours as he finds ample for his calf's highest thrift ; or to express his concern lest the nurse shall swelter his young hopeful's body with excessive wraps, or parch her face and injure her lungs, with heated air in the immediate vicinity of the stove, upon penalty of being called a "hen-hussy." Not only this, but, with rare exceptions, the father seems to feel neither interest nor responsibility as to the care of his children during this, the most critical period of their lives ; having, apparently, in this one direction, if in no other, an abiding faith in the marvellous knowledge of "the women folks." It has been remarked upon as an anomaly, by such thinkers as Herbert Spencer, Huxley, etc., that in general it is considered altogether beyond the province of the male parent to know anything at all about what is going on in the nursery.

In view of this state of things, and at the risk of being misunderstood, Dr. Page has been a discriminating observer of the daily habits, customs, needs, and evolutions of the *genus* infant, not only in the nursery at home, but having been a great traveler, both in this country and Europe, he has never let slip an opportunity to add to his stock of lore in this direction. On railroad trains, in stages, at hotels or depots, or wherever a baby's face presented itself, whether white, black, red, or yellow, regardless of race or previous condition of servitude, our author has made it a point to make the acquaintance of the parents or attendants, and to ascertain, so far as possible, the history of the little one. The tape measure, always ready, has been used to ascertain his height, breadth, and depth; the age, weight, and height noted and carefully compared; and the facts drawn out as to its general health, physical traits, special sicknesses, methods of treatment, management, diet, clothing, etc. This indicates the features of the work he has now brought out.

From this it will be seen that the book is of a different character from the customary type of books which are supposed to be replete with "advice to mothers," and will most likely command the attention of the medical profession as well as that of parents, who are really anxious to know how to feed and train physically their young children, in order to secure the best development.

EXERCISE—NEGLECT!

BUT little has been said upon this subject, or the relation of baby carriages and coddling to health—holding the baby, tending, carrying, “amusing” him while he sits in his carriage or in the lap for a length of time, out of all proportion to the paltry few minutes in which he may, in spite of every unfavorable influence, condescend to take care of himself! On pages 143 and 144 particular attention is called to the manner of feeding and exercising of those little children of nature, puppies and kittens.

The young of some species are, upon occasion, carried by their parents from one point to another; but beyond this they furnish their own transportation. Their parents roll and tumble them about, more or less, for mutual pleasure; but in the main they are from the beginning forced to rely upon themselves. Everywhere among animals we observe the same thing: the young are never over-tended. They have no baby carts in which to spend a great portion of their time, to their physical disadvantage, like our pampered baby aristocrats. They are not taught to sit down with a box of playthings in front of them to prevent them from being tempted to make their way to distant objects. If they chance to see anything that they want, it never comes to them. It is Mahomet

and the mountain every time; the creature and the thing never come together, except through the exertion of the creature! Hence they grow lusty and strong and healthy. They earn their diet, and therefore it is digested and assimilated. Their frames are covered with well-knit muscles—not a continuous fatty tumor, with scarcely any, *no sound* muscle beneath. In short, they are from the very onset kept in “condition.” Hence it is that our two-year-old colts, for example, cross the Atlantic to compete with English, French, and German two-year-olds in races for high stakes. It is a foolish saying among grandmothers, that “it is a good baby that is good with tending!” Yes, so far as his disposition and temper are concerned. But it is a poor practice to “tend” him, and, speaking with relation to his physical condition, it is a mean baby that is constantly “tended.”

The more he is attended the more he must be. He becomes so exacting, perhaps, that his nurse or mother furnishes legs for him until he is a year and a half or two years old. His own legs remain quite unable to bear him up!

“Oh, yes!” exclaims a young mother, in utter disgust at this idea, “you think a baby is good for nothing except to be turned off and neglected!” Not at all. It is not neglecting a child to make a splendid animal of him in preparation for making him a splendid man. I insist that a baby is good for something beside being treated either as a doll or an unreasoning tyrant. Under the system I propose he would not be a fussy “cry-baby.” He would be a rollicking,

happy, self-reliant little fellow, and better every way than if his mother spends herself to injure him mentally, morally, and physically.

Backward or bow-legged children are usually the product of innutrition, consequent upon excessive diet, or the use of innutritious, indigestible food, (see "White Flour.")

Given anything like natural conditions as to the mother's diet, and a nursing child, left to himself (for all but the smallest portion of the day), might be suckled *ad lib.* Even the usual gross excess of cow's milk would be less excessive if the baby exercised his muscular, in proportion as he does his alimentary, system. Indeed, I would say, that after the creeping age was reached (and babies would both creep and walk at a much younger age if left to their own resources), even the bottle-baby, on cow's milk, might be his own guide as to quantity, at his three meals, if nature had also her own way as to exercise and muscular development. I commend this thought to parents and all who have the care of infants, as one worthy of careful consideration. The more the baby exerts himself the more he can digest, and the more he digests the more robust he will be. Giving this theory a rational, not a carping interpretation, and with all these conditions favoring—that is, if we would not take pains to *prevent* nature from doing her part in certain directions, while in others we demand impossibilities,—scarcely a healthy-born child would die, while all would grow better and make better men and women.

APPENDIX TO FOURTH EDITION.

A WORD ABOUT COMPROMISES.

THE author takes the opportunity offered by the somewhat remarkable circumstance of the fourth edition (within two years) of a *health* book which in some most important features "flies in the face" of all literature upon the subject of Infant Dietetics, to remark that, upon corresponding with quite a number of purchasers of "How to Feed the Baby," he finds that from one or another cause parents are inclined to compromise in the matter of feeding, and that physicians are, in some cases, forced to permit half-way measures, so radical appear the teachings of "How," when compared with the "old way." Wherever and whenever there has been any approach to the system recommended, the improvement in the condition of infants has been very noticeable. In a number of instances parents, upon personal correspondence with the author, and others from the book alone, have been persuaded to adopt the system entire; and in every such case the results have been satisfactory beyond the highest expectations of the parents. We append one of many letters commendatory of the work.

"626 N. 12TH ST., PHILADELPHIA,

"April 16, 1883.

"C. E. PAGE, M.D., BIDDEFORD, ME.

"DEAR DR. PAGE: I received your letter of 8th inst. with great pleasure, and Mrs. Leinroth unites with me

in expressing the most sincere thanks for the great interest you take in our little boy's welfare and happiness. He was one year old on Friday last, and what a happy year it has been for him and ourselves !

"Dear doctor, I can not find words to sufficiently express the thankfulness we feel toward you for the valuable advice we have received through your kind letters and that most useful book, 'How to Feed the Baby.' When I look back and recall the experience of our baby's first two months—the pain and suffering he endured ; the anxiety and perplexity that filled our days and nights—and contrast it with the splendid results achieved by following the simple and plain advice set forth in the book : next to the feeling of thankfulness for our own great blessing, comes that of sorrow that all parents will not be persuaded to give this system a fair trial, and thus be led on to many hours of happiness for themselves and their children. But Truth travels very slowly, and it seems so difficult for people to throw overboard their prejudices and old customs.

"We have given your ideas a thorough trial during the past eight months (the previous two months, as you know, we compromised somewhat, and great as was the improvement, we now see that it might have been greater) and have met with the most pronounced success on every hand and in every detail. Although our baby has been exposed to the open air under almost all circumstances, especially under such as would make most persons believe that he would 'catch his death o' cold,' he has not, during all this time, been troubled with the slightest ailment ; no 'colds,' no fevers, no running of the nose, no trouble getting

teeth ; in fact, try as much as we might, we could not find the least trace of any of the many symptoms with which children are generally troubled at this time of their lives. He is always happy and lively during the day, and sleeps well all night. He is growing steadily, weight gradually increasing, and in all respects his condition is just to our mind, and he is a source of wonder to others, as well as ourselves. Our old lady friends, and the nurse, even, confess that there is *one* man who can teach them something about a baby ! With kindest regards to yourself and family, I remain

“Your sincere and thankful friend,

“ROBERT G. LEINROTH.”

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An old school physician, who had received a copy in paper, and was now purchasing one in cloth for his library, remarked to the publishers, that “‘How to Feed the Baby’ contained more information, of value to medical practitioners and all who have the care of children, than could be gained in a three years’ course at any medical college in America,—more, in fact, than is *taught* at the colleges in this or any other country,—concerning the alimentation and hygienic treatment of infants and young children, looking to the prevention and cure of disease.” “Finally,” he added, “my experience has led me not only to urge upon parents the adoption of the principles taught in this book, but, in critical cases, to insist upon it as a conditioner of my continuing to act as their medical adviser.”

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